

Network Systems
Science & Advanced
Computing
Biocomplexity Institute
& Initiative
University of Virginia

Foresight and Analysis of Infectious Disease Threats to Virginia's Public Health

May 11th, 2023

(data current to May 4th – May 10th)

Biocomplexity Institute Technical report: TR BI-2023-71



BIOCOMPLEXITY INSTITUTE

biocomplexity.virginia.edu

About Us

- Biocomplexity Institute at the University of Virginia
 - Using big data and simulations to understand massively interactive systems and solve societal problems
- Over 20 years of crafting and analyzing infectious disease models
 - Pandemic response for Influenza, Ebola, Zika, and others



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Overview

- **Goal:** Understand impact of current and emerging Infectious Disease threats to the Commonwealth of Virginia using modeling and analytics
- **Approach:**
 - Provide analyses and summaries of current infectious disease threats
 - Survey existing forecasts and trends in these threats
 - Analyze and summarize the current situation and trends of these threats in the broader context of the US and world
 - Provide broad overview of other emerging threats

Key Takeaways

Projecting future cases precisely is impossible and unnecessary.

Even without perfect projections, we can confidently draw conclusions:

- Case rates and hospitalizations from COVID-19 continue declines but rate has slowed and has seemingly entered a plateau
 - Hospital occupancy down to levels last seen in early May of 2022
- Nearly all indicators point to this trend continuing in near term
- Influenza hospitalizations remain very low and ILI activity remains below seasonal threshold

Model Updates

- Projected Trajectories from previous rounds remain on target, no new projections made this round

Public Health Emergency Expires

May 11, 2023, marks the end of the federal COVID-19 PHE declaration. After this date, CDC's authorizations to collect certain types of public health data will expire.

- This expiration shifts elements of the COVID-19 pandemic response towards a monitoring and evaluation approach
- Changes data availability and cadence of updates



COVID-19

End of the Federal COVID-19 Public Health Emergency (PHE) Declaration

Updated May 5, 2023 | Español | Other Languages | Print

OIG's COVID-19 Public Health Emergency Flexibilities End on May 11, 2023 Upon Expiration of the COVID-19 Public Health Emergency Declaration

Important

This notice reminds the health care community that OIG flexibilities, described further below, end upon the expiration of the COVID-19 Declaration on May 11, 2023.

In connection with the [COVID-19 public health emergency declaration](#) (COVID-19 Declaration) first issued by the Secretary of Health and Human Services (HHS) under Section 319 of the Public Health Service Act on January 31, 2020, and subsequently renewed, the Office of Inspector General (OIG) issued two Policy Statements and answered a series of frequently asked questions (FAQs). The Policy Statements and FAQs were designed to provide flexibility and minimize burdens for the health care industry as it faced the challenges of the COVID-19 pandemic. Based on current COVID-19 trends, [HHS plans to let the COVID-19 Declaration expire](#) at the end of the day on May 11, 2023.

Vaccines will remain available.
Access to COVID-19 vaccines will generally not be affected for now. The U.S. government is currently distributing free [COVID-19 vaccines](#) for all adults and children. To help keep communities safe from COVID-19, HHS remains committed to maximizing continued access to COVID-19 vaccines.

COVID-19 at-home tests may not be covered by insurance.
Insurance providers will no longer be required to waive costs or provide free COVID-19 tests. CDC's [No-Cost COVID-19 Testing Locator](#) can help people find current community and pharmacy partners participating in the [Increasing Community Access to Testing \(ICAT\) program](#).

Treatments will remain available.
Medication to prevent severe COVID-19, such as [Paxlovid](#) (P), will remain available for free while supplies last. After that, the price will be determined by the medication manufacturer and your health insurance coverage. Check with your healthcare provider if you need [early treatment to prevent severe COVID-19](#).

National reporting of COVID-19 may change.
We have the right data for this phase of COVID-19 that will allow us to understand what's happening with the virus in America in real-time. Simply put, while what we have going forward will be different, it will still allow CDC, local public health officials, and the members of the public to understand COVID-19 dynamics at the community level.

The following metrics remain available:

COVID-19 hospital admissions.
All hospitals are required to report data through the end of April 2024. This provides a transparent and comprehensive way for monitoring of severe COVID-19 in the nation level. These data will still be available in weekly reporting starting after May 11.

COVID-19 deaths will remain, but the source of data has changed.
The National Vital Statistics System (NVSS) is the most accurate and complete source of death data, and retrieval of death certificate reporting has expanded over the course of the pandemic. A new rule, the pattern of deaths that are COVID-19-associated, and other metrics from NVSS will be reported weekly.

Emergency department patient visits with diagnosed COVID-19 will continue to be reported on a weekly basis.
These data cover about 10% of emergency department and health information about COVID-19 visits in real time. This is one of the fastest ways to spot changing trends in COVID-19 transmission.

COVID-19 test positivity will remain, but the source of data has changed.
After May 23, CDC will report representative test positivity data from the [Specialized Laboratory and Branch Surveillance System \(SBLSS\)](#), a long-standing system with over 400 labs. Some states may already have laboratory submit data. These data can provide early indications of COVID-19 transmission.

Wastewater surveillance and genomic surveillance will remain in place.
This will allow the CDC to track transmission and how the virus is mutating.

Counts of COVID-19 vaccine administrations will remain for jurisdictions who continue to submit data, but frequency will change.
These data will be updated weekly, instead of weekly.

The following data have been removed:

COVID-19 case and death data are no longer highlighted on COVID Data Tracker.
Throughout the pandemic, case and death counts were reported weekly to the CDC by states. Case data has become increasingly unreliable as some states and jurisdictions may no longer collect case data, testing results are sometimes not reported, or some individuals skip testing all together. CDC continues to receive line-level data on COVID-19 cases through the National Notifiable Disease Surveillance System—a system that CDC uses to regularly collect case data for around 120 notifiable diseases. These data are available to the public for analysis at [data.cdc.gov](#).

National, county-level test positivity data from COVID-19 Electronic Reporting (CELR) are no longer available.
This is because after May 11th [laboratories are no longer required to report results](#).

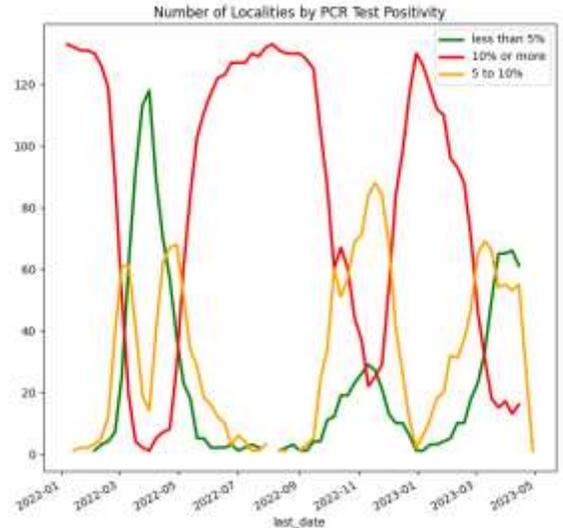
The V-safe tracking system for health check-ins after vaccination health check-ins is ending.
CDC will continue to monitor COVID-19 vaccines through its other established vaccine safety monitoring systems. V-safe users or others who get vaccinated can report any possible health problems or adverse events following vaccination to the [Vaccine Adverse Event Reporting System](#).



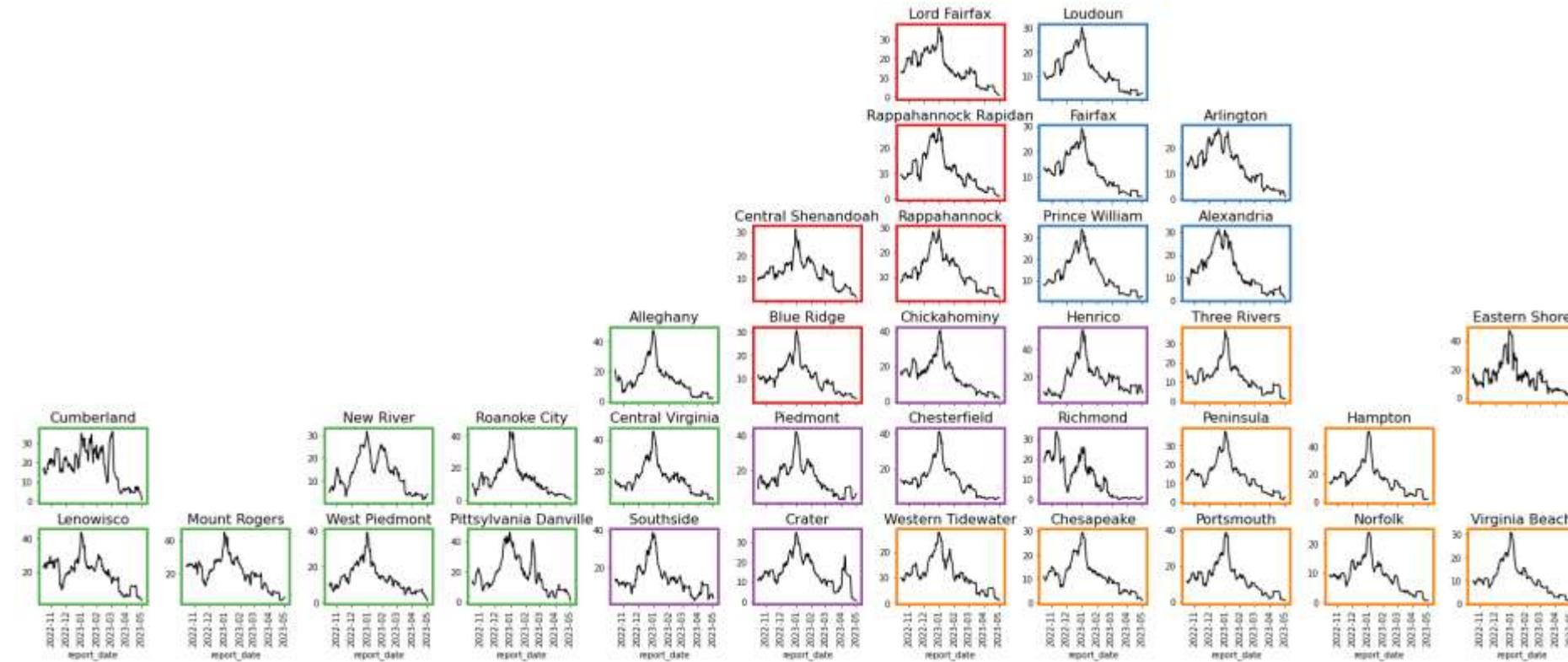
COVID-19 Surveillance

Case Rates (per 100k) and Test Positivity

PCR test positivity data to expire soon



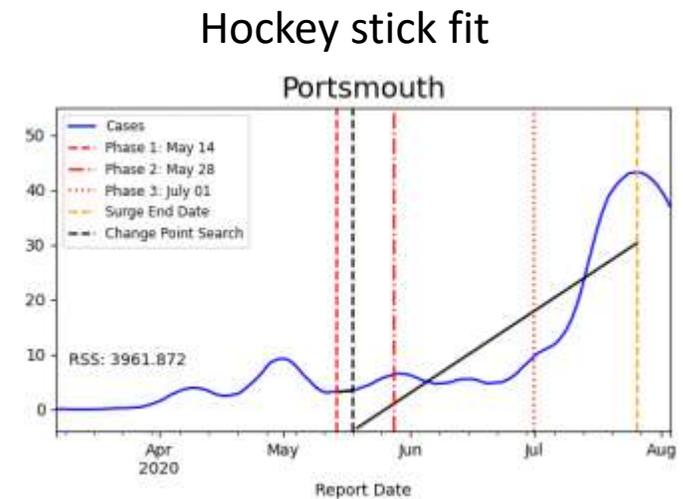
County level RT-PCR test positivity
Green: <5.0% (or <20 tests in past 14 days)
Orange: 5.0%-10.0% (or <500 tests and <2000 tests/100k and >10% positivity over 14 days)
Red: >10.0% (and not "Green" or "Yellow")



District Trajectories

Goal: Define epochs of a Health District's COVID-19 incidence to characterize the current trajectory

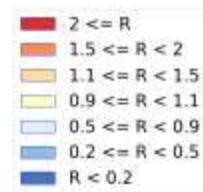
Method: Find recent peak and use hockey stick fit to find inflection point afterwards, then use this period's slope to define the trajectory



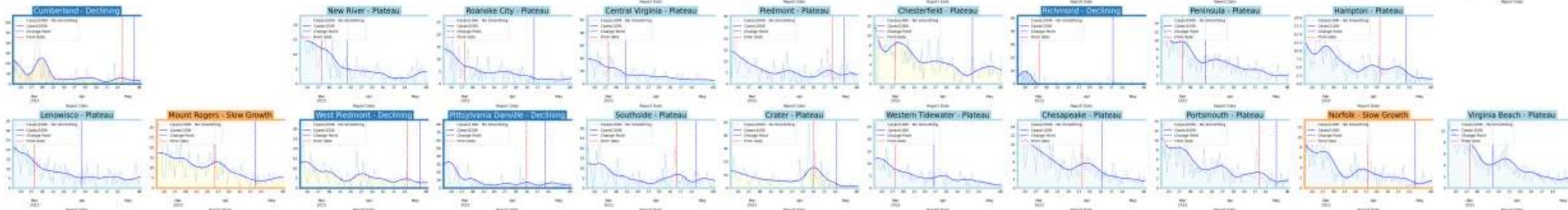
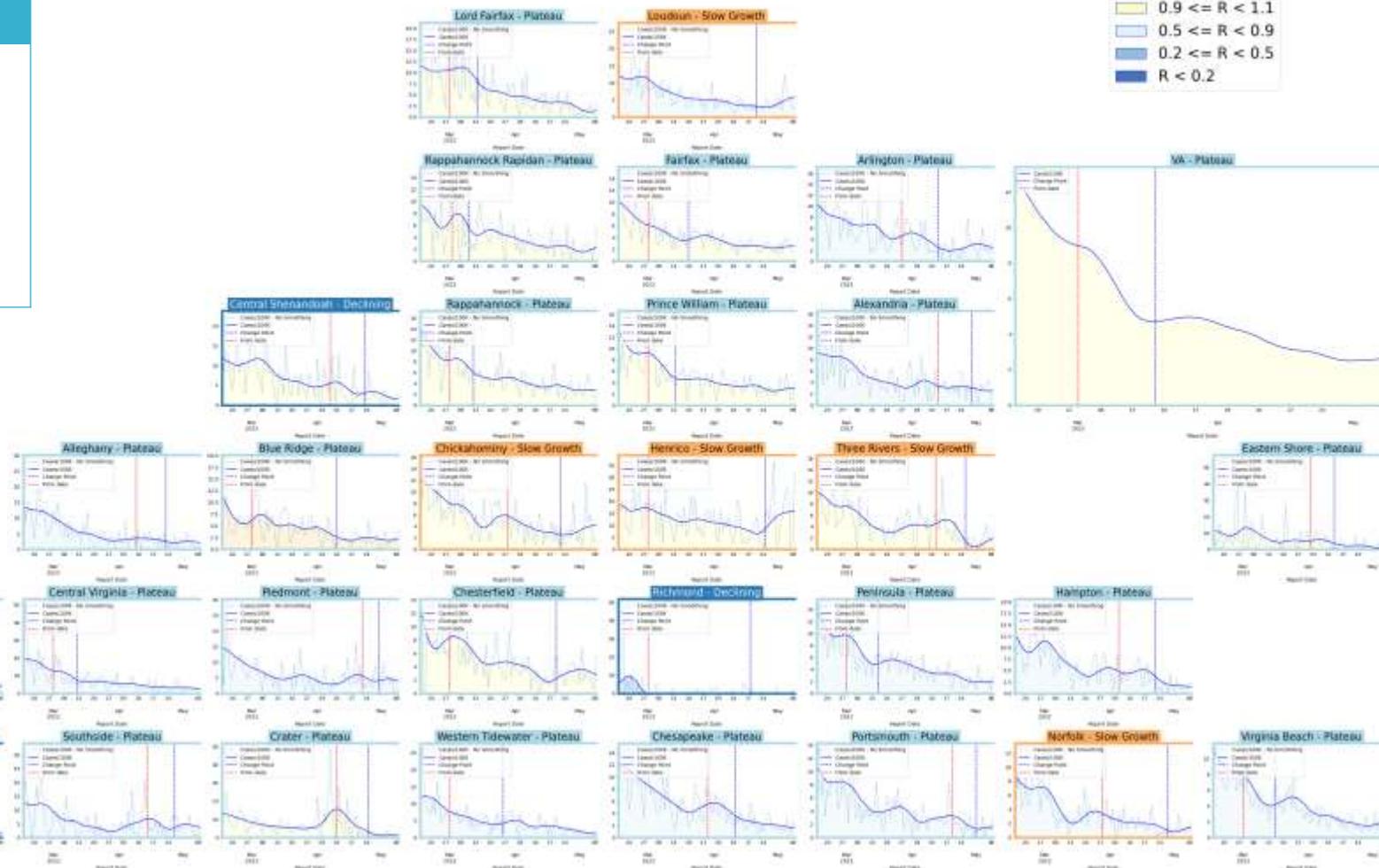
Trajectory	Description	Weekly Case Rate Slope (per 100k)	Weekly Hosp Rate Slope (per 100k)
Declining	Sustained decreases following a recent peak	slope < -0.88/day	slope < -0.07/day
Plateau	Steady level with minimal trend up or down	-0.88/day < slope < 0.42/day	-0.07/day < slope < 0.07/day
Slow Growth	Sustained growth not rapid enough to be considered a Surge	0.42/day < slope < 2.45/day	0.07/day < slope < 0.21/day
In Surge	Currently experiencing sustained rapid and significant growth	2.45/day < slope	0.21/day < slope

District Case Trajectories – last 10 weeks

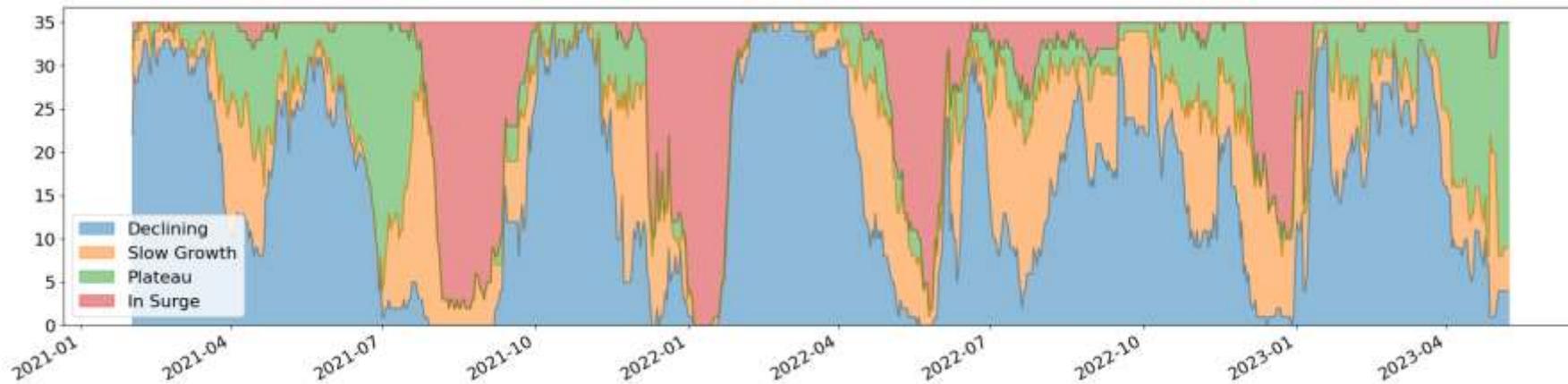
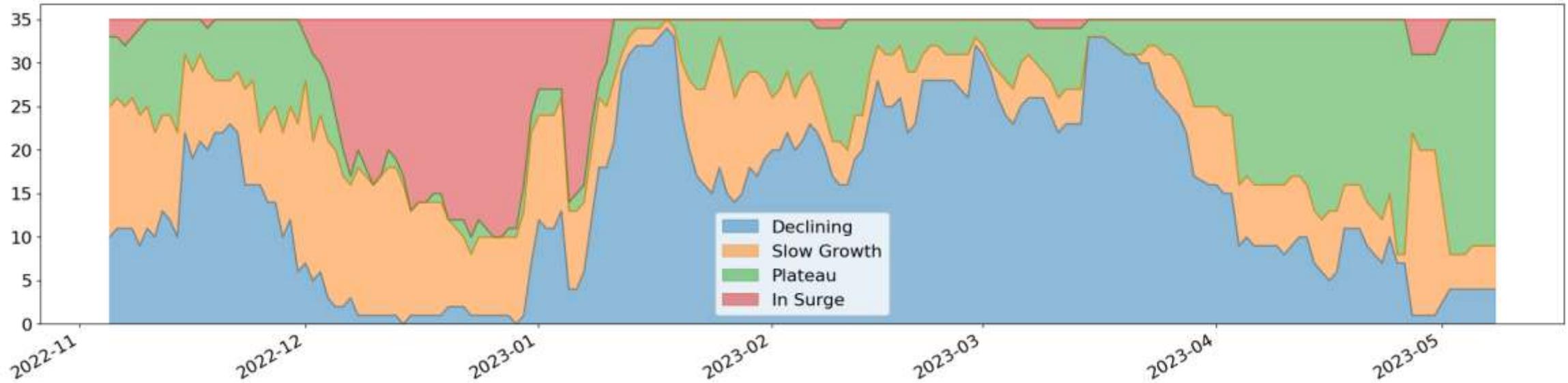
Status	Number of Districts	
	Current Week	Last Week
Declining	5	(4)
Plateau	24	(27)
Slow Growth	6	(4)
In Surge	0	(0)



Curve shows smoothed case rate (per 100K)
 Trajectories of states in label & chart box
 Case Rate curve colored by Reproductive number



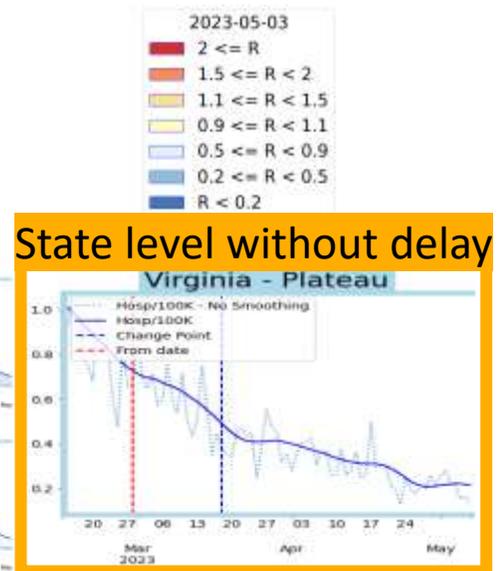
District Case Trajectories – Recent 6 months



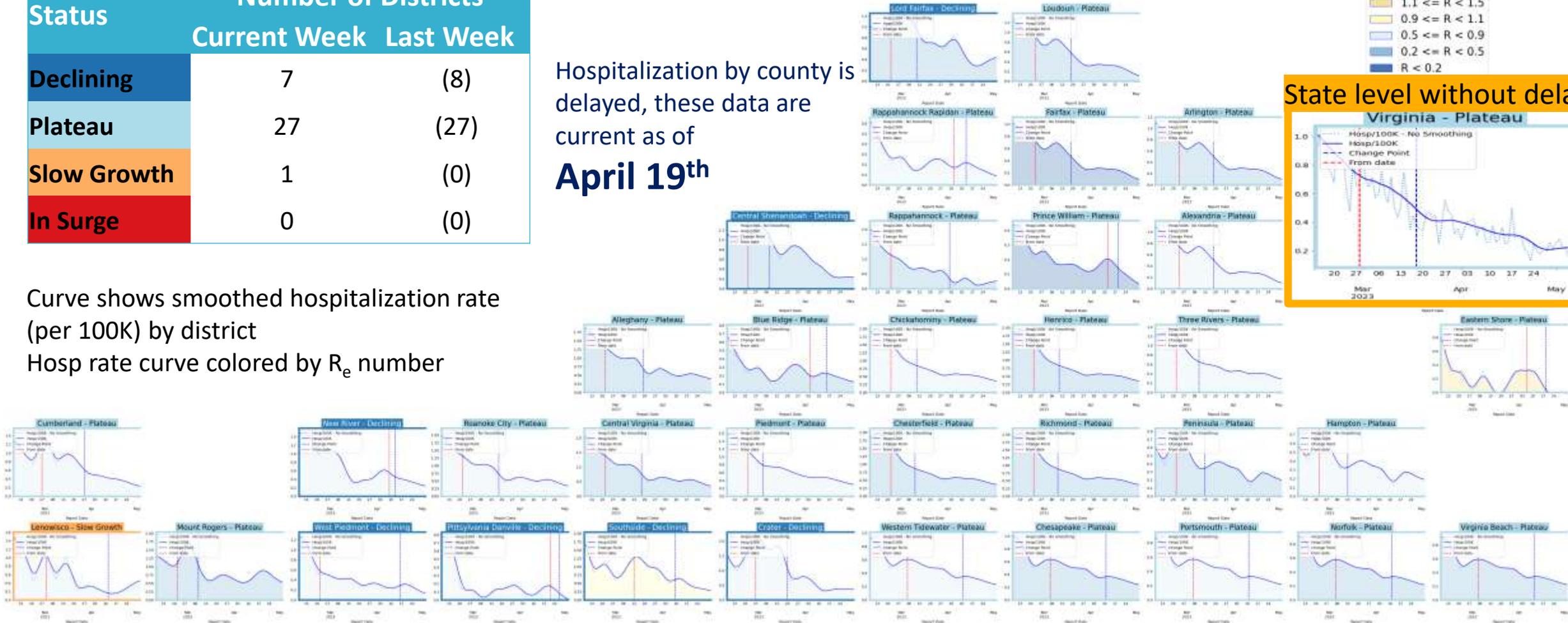
District Hospital Trajectories – last 10 weeks

Status	Number of Districts	
	Current Week	Last Week
Declining	7	(8)
Plateau	27	(27)
Slow Growth	1	(0)
In Surge	0	(0)

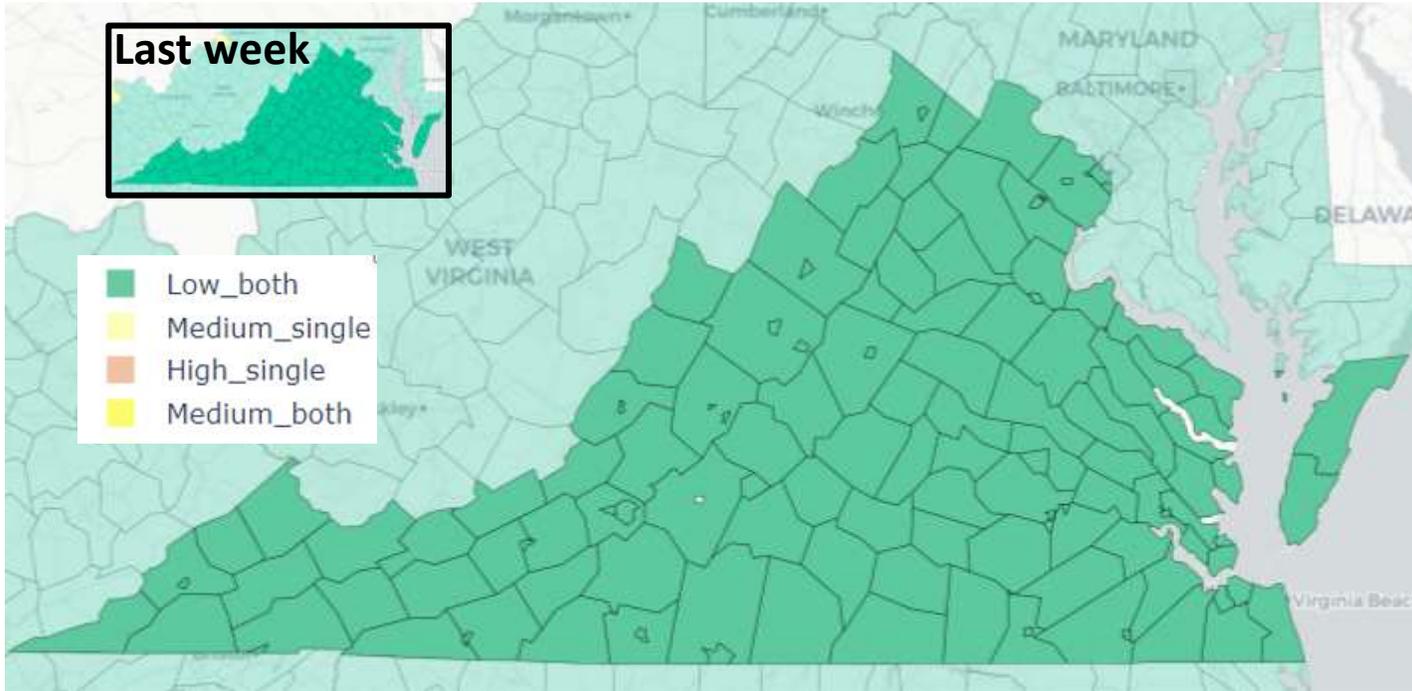
Hospitalization by county is delayed, these data are current as of **April 19th**



Curve shows smoothed hospitalization rate (per 100K) by district
Hosp rate curve colored by R_e number



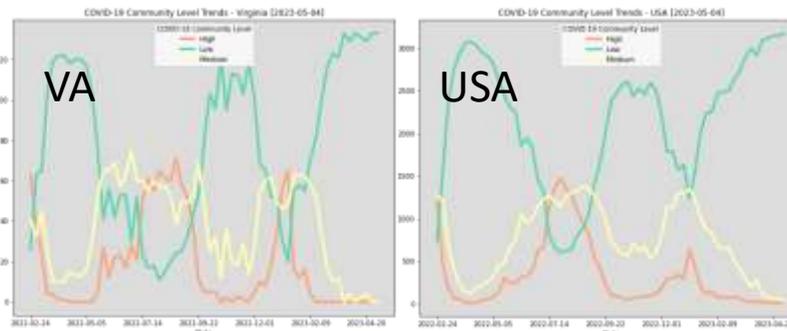
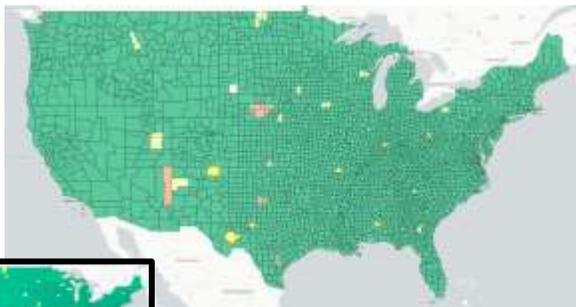
CDC's COVID-19 Community Levels



Red outline indicates county had 200 or more cases per 100k in last week

Pale color indicates either beds or occupancy set the level for this county

Dark color indicates both beds and occupancy set the level for this county



COVID-19 Community Levels - Use the Highest Level that Applies to Your Community				
New COVID-19 Cases Per 100,000 people in the past 7 days	Indicators	Low	Medium	High
Fewer than 200	New COVID-19 admissions per 100,000 population (7-day total)	<10.0	10.0-19.9	≥20.0
	Percent of staffed inpatient beds occupied by COVID-19 patients (7-day average)	<10.0%	10.0-14.9%	≥15.0%
200 or more	New COVID-19 admissions per 100,000 population (7-day total)	NA	<10.0	≥10.0
	Percent of staffed inpatient beds occupied by COVID-19 patients (7-day average)	NA	<10.0%	≥10.0%

The COVID-19 community level is determined by the higher of the new admissions and inpatient beds metrics, based on the current level of new cases per 100,000 population in the past 7 days.

Last week

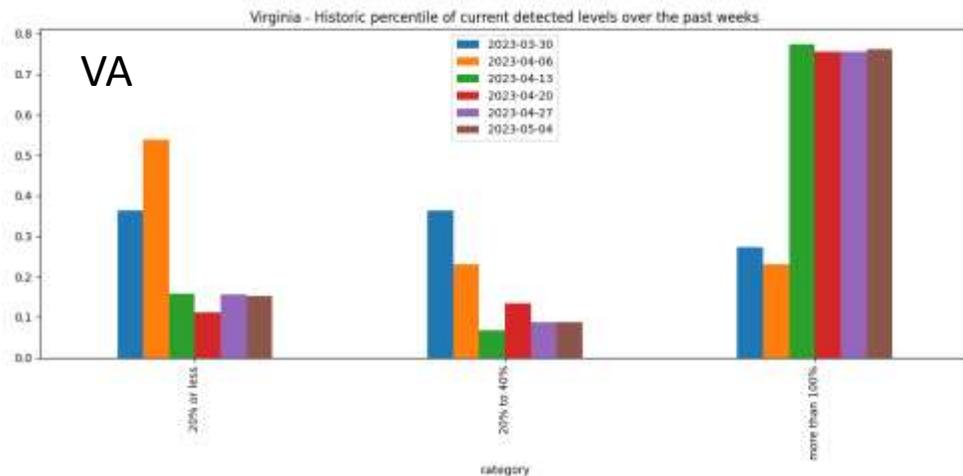
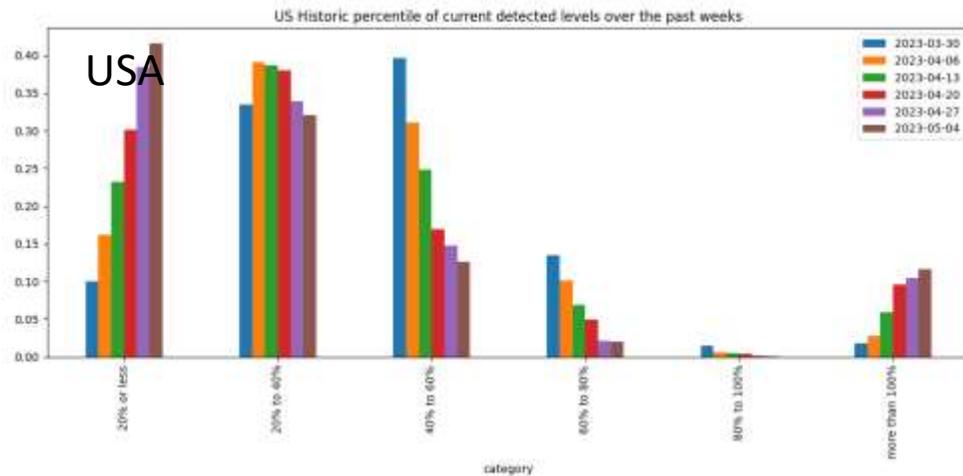
11-May-23



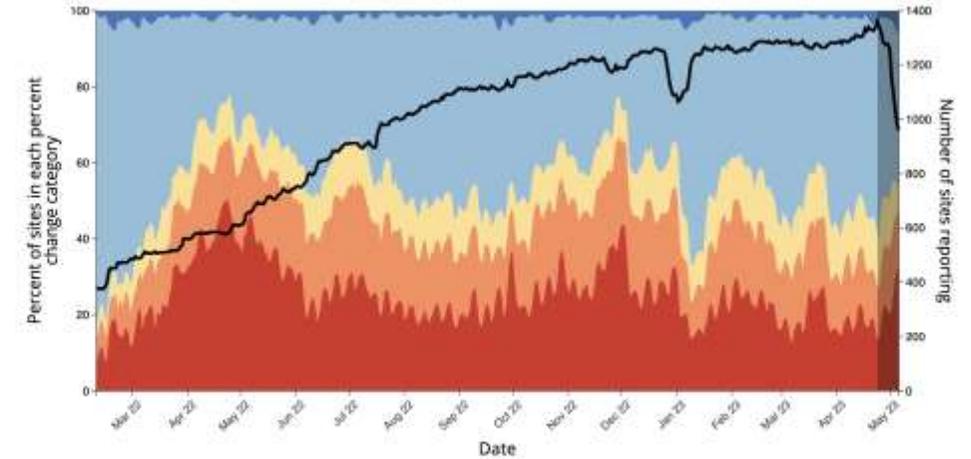
COVID-19 Growth Metrics

Wastewater Monitoring

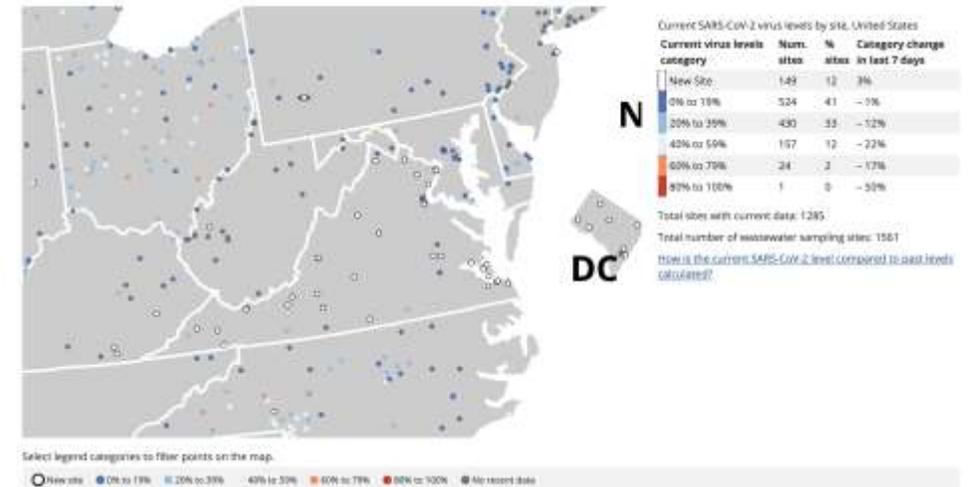
Wastewater provides a coarse estimate of COVID-19 levels in communities and can be a good indicator of activity levels



Percent of sites in each percent change category over time, United States*



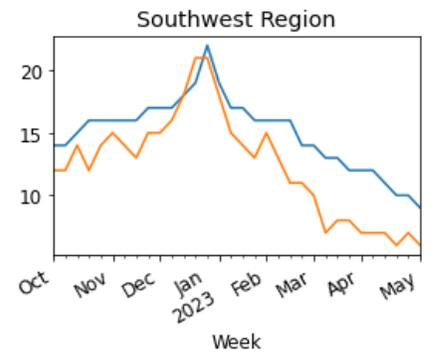
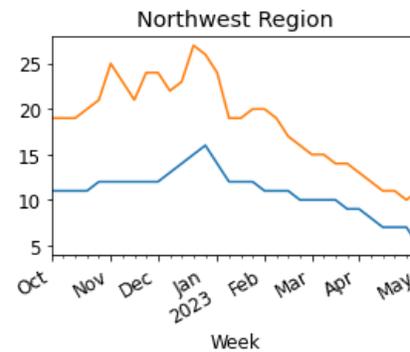
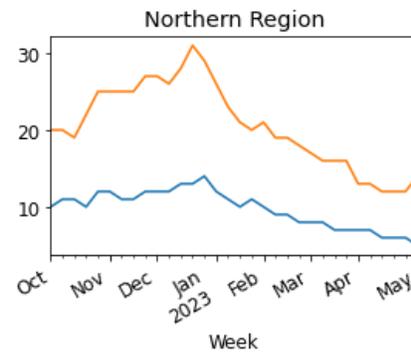
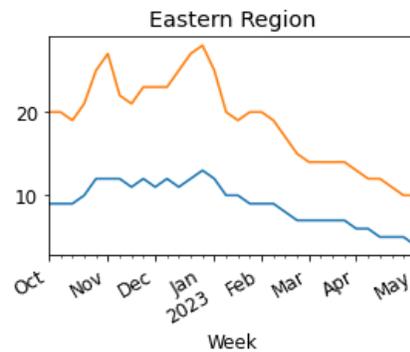
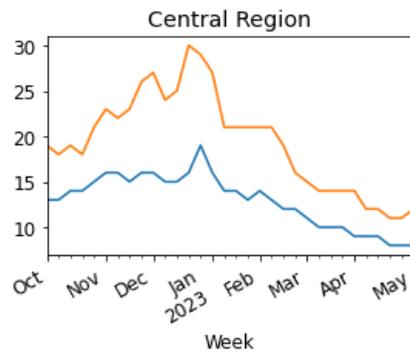
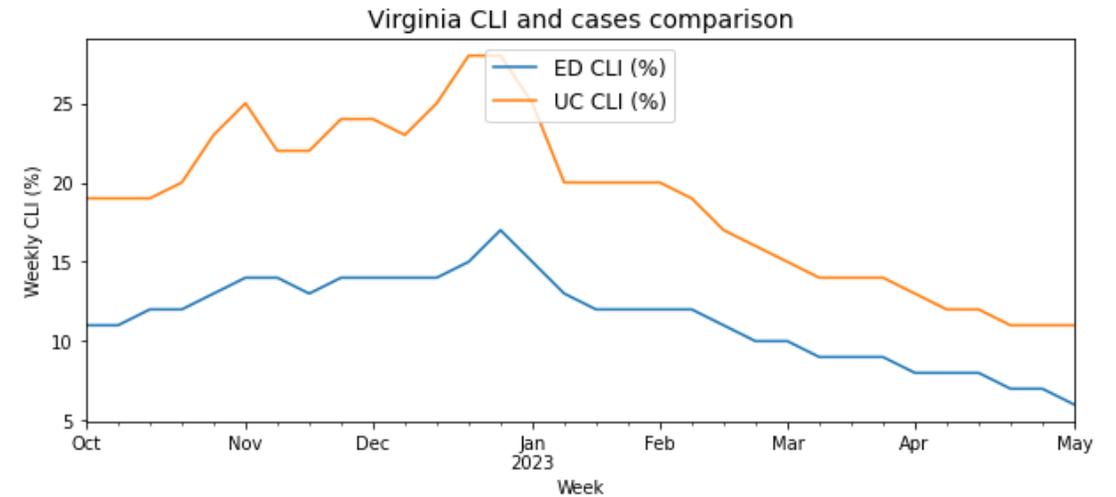
Percent change categories: Large decrease (-100%) Decrease (-99% to -10%) Stable (-9 to 9%) Increase (10 to 99%) Large increase (100% or more)



COVID-like Illness Activity

COVID-like Illness (CLI) gives a measure of COVID transmission in the community

- Emergency Dept (ED) based CLI is more correlated with case reporting
- Urgent Care (UC) is a leading indicator but may be influenced by testing for other URIs
- **Levels continue to decline into lowest levels in past 8 months**



COVID-19 Severity Metrics

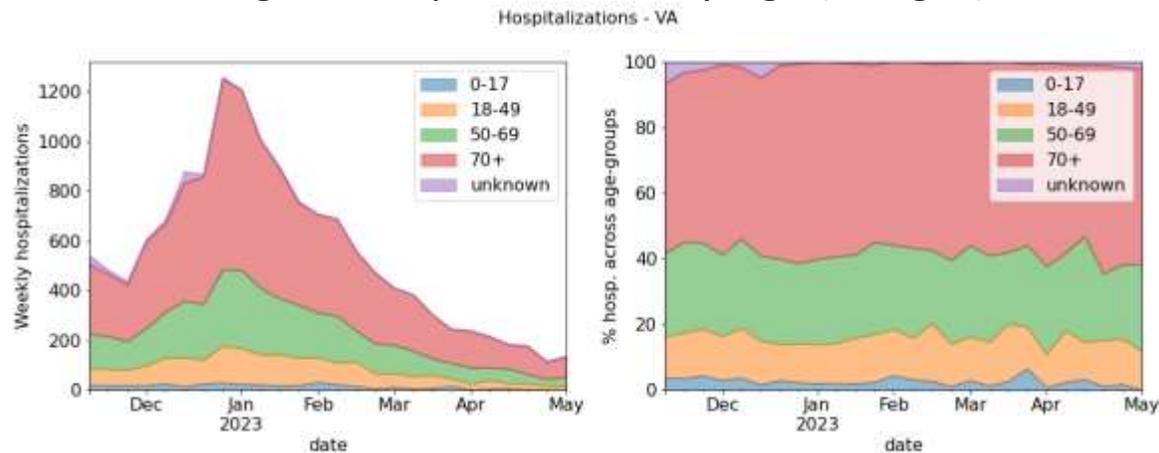
Hospitalizations in VA by Age

Age distribution in hospitals relatively stable

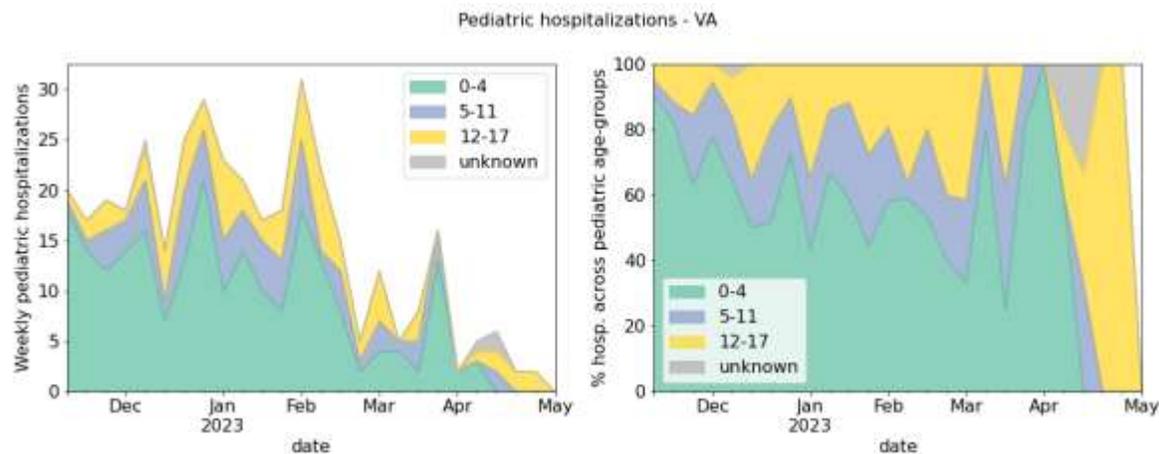
- Uptick in hospitalizations mostly fueled by 70+ age group
- Pediatric hospitalizations level off after uptick last week

Note: These data are lagged and based on HHS hospital reporting

Virginia Hospitalizations by Age (all ages)



Pediatric Hospitalizations by Age (0-17yo)



COVID-19 Spatial Epidemiology

Zip code level weekly Case Rate (per 100K)

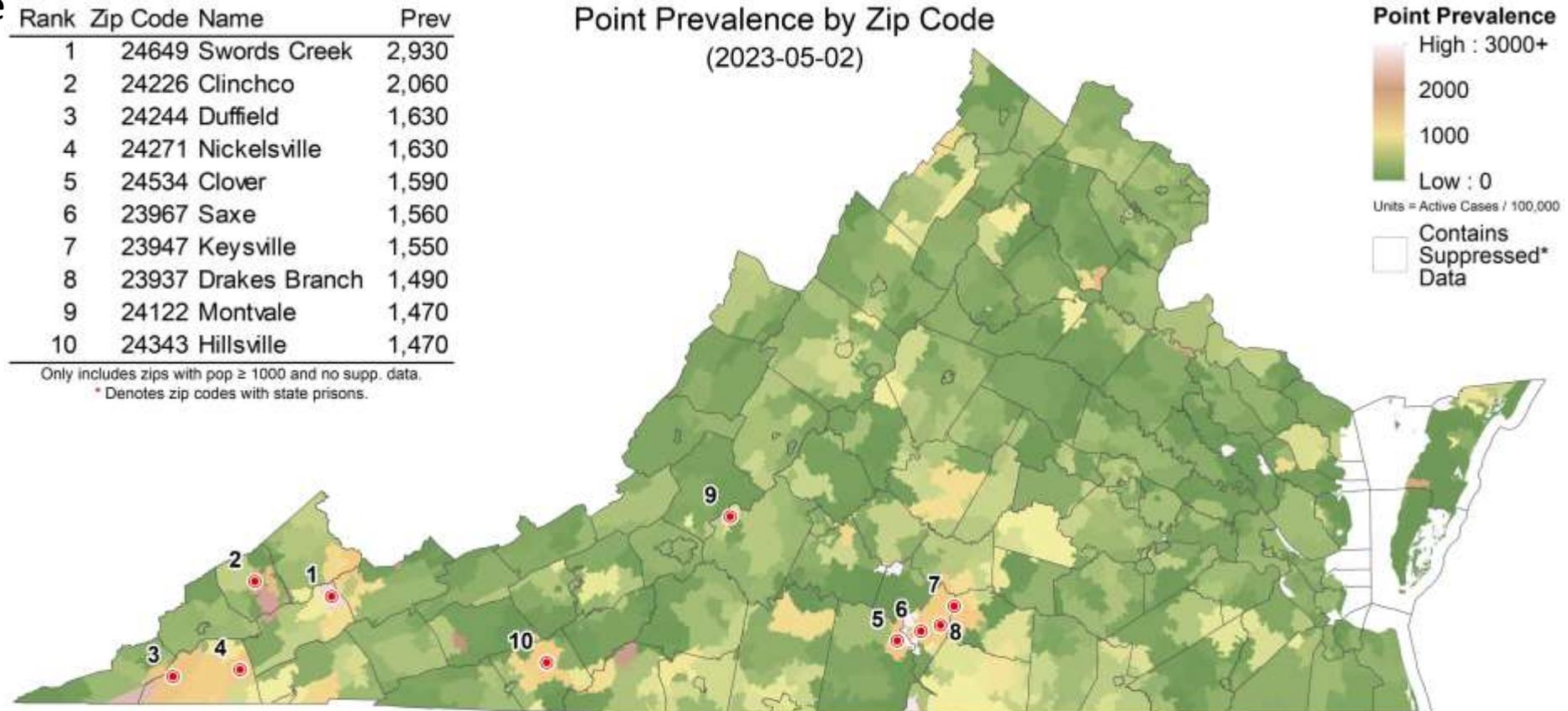
Case Rates in the last week by zip code

- Note now using **fortnightly** aggregations. The change effectively halves the color ramp, though it remains unchanged.
- No prisons in top 10.
- High prevalence values are primarily found in SWVA and Southside (same as last week).
- Unusual activity near Charlotte Court House.
- Some counts are low and suppressed to protect anonymity. They are shown with a red outline.

Rank	Zip Code	Name	Prev
1	24649	Swords Creek	2,930
2	24226	Clinchco	2,060
3	24244	Duffield	1,630
4	24271	Nickelsville	1,630
5	24534	Clover	1,590
6	23967	Saxe	1,560
7	23947	Keysville	1,550
8	23937	Drakes Branch	1,490
9	24122	Montvale	1,470
10	24343	Hillsville	1,470

Only includes zips with pop ≥ 1000 and no supp. data.
 * Denotes zip codes with state prisons.

Point Prevalence by Zip Code
(2023-05-02)

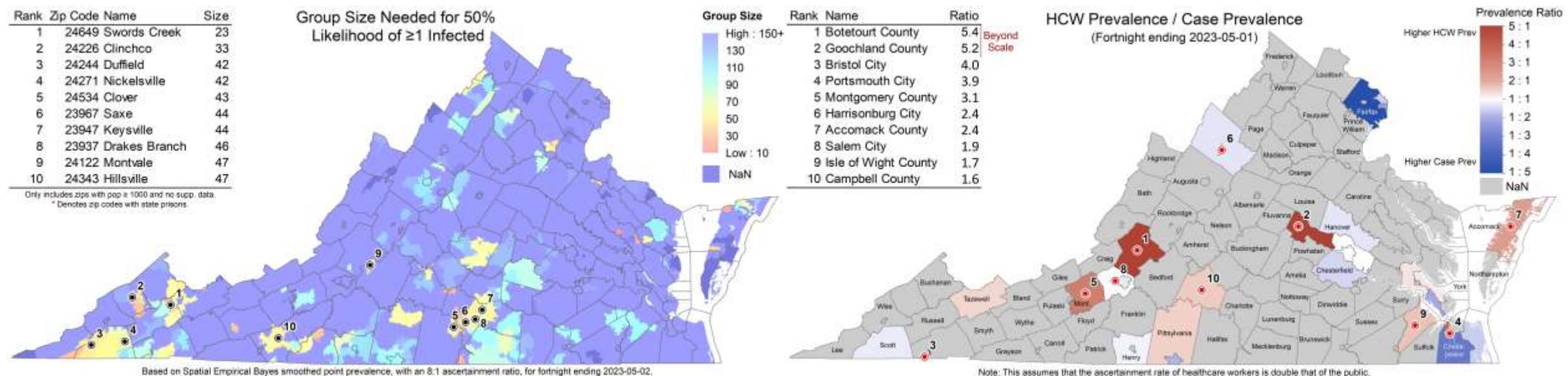


Based on Spatial Empirical Bayes smoothed point prevalence, with an 8:1 ascertainment ratio, for fortnight ending 2023-05-02.

Risk of Exposure by Group Size and HCW prevalence

Case Prevalence in the last **fortnight** by zip code used to calculate risk of encountering someone infected in a gathering of randomly selected people

- **Group Size:** Assumes 8 undetected infections per confirmed case (ascertainment rate from recent seroprevalence survey) and shows minimum size of a group with a 50% chance an individual is infected by zip code (e.g., in a group of 23 in Sword's Creek, there is a 50% chance someone will be infected).
- **HCW ratio:** Case rate among health care workers (HCW) in the last fortnight using patient facing health care workers as the numerator / population's case prevalence. High HCW ratios are concentrated near Roanoke.

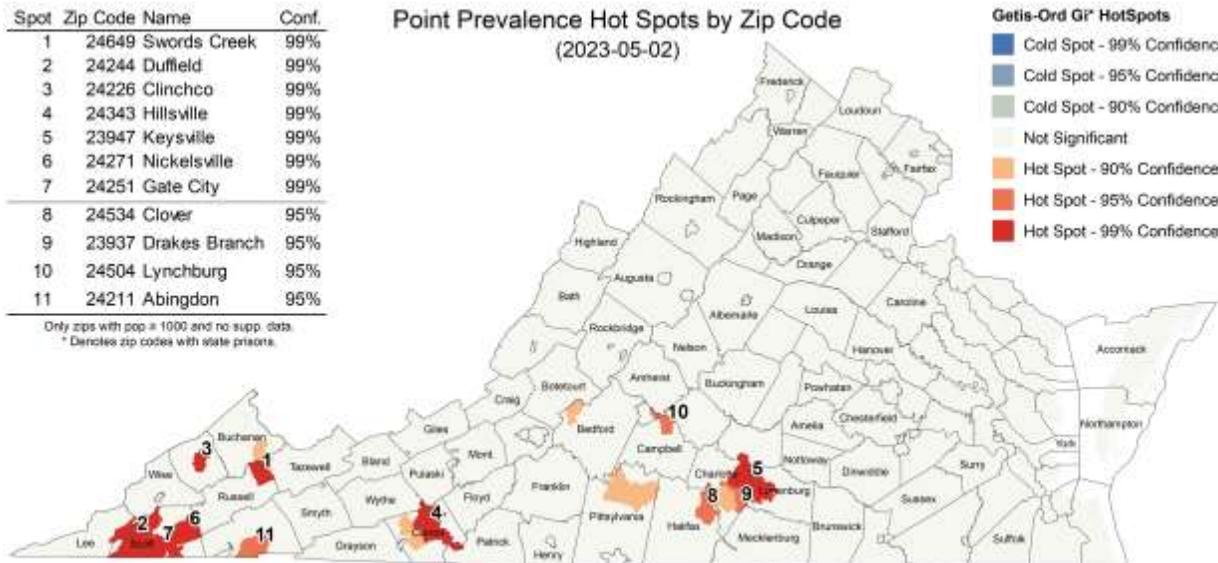


Current Hot-Spots

Case rates that are significantly different from neighboring areas or model projections

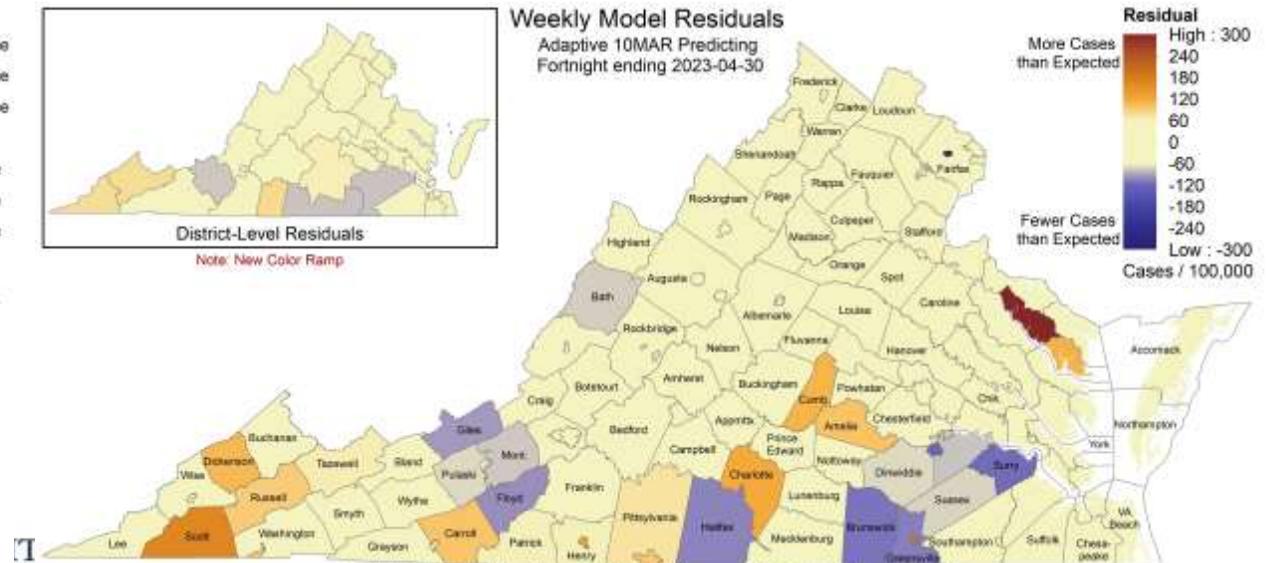
- **Spatial:** Getis-Ord G_i^* based hot spots compare clusters of zip codes with **fortnightly** case prevalence higher than nearby zip codes to identify larger areas with statistically significant deviations
- **Temporal:** The weekly case rate (per 100K) projected last month compared to those observed by county, which highlights temporal fluctuations that differ from the model's projections.
- Low prevalence rates result in sporadic hot spots, mostly concentrated in the Southwest and Southside. Limited overpredictions in New River, Southside, and Crater; underpredictions in far SW and Pitt/Danville.

Spatial Hotspots



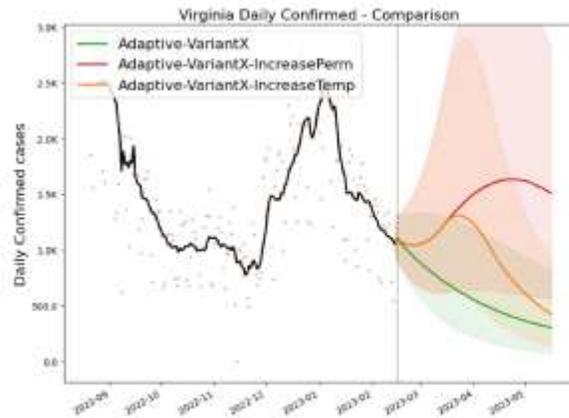
Based on Global Empirical Bayes smoothed point prevalence for fortnight ending 2023-05-02.

Clustered Temporal Hotspots

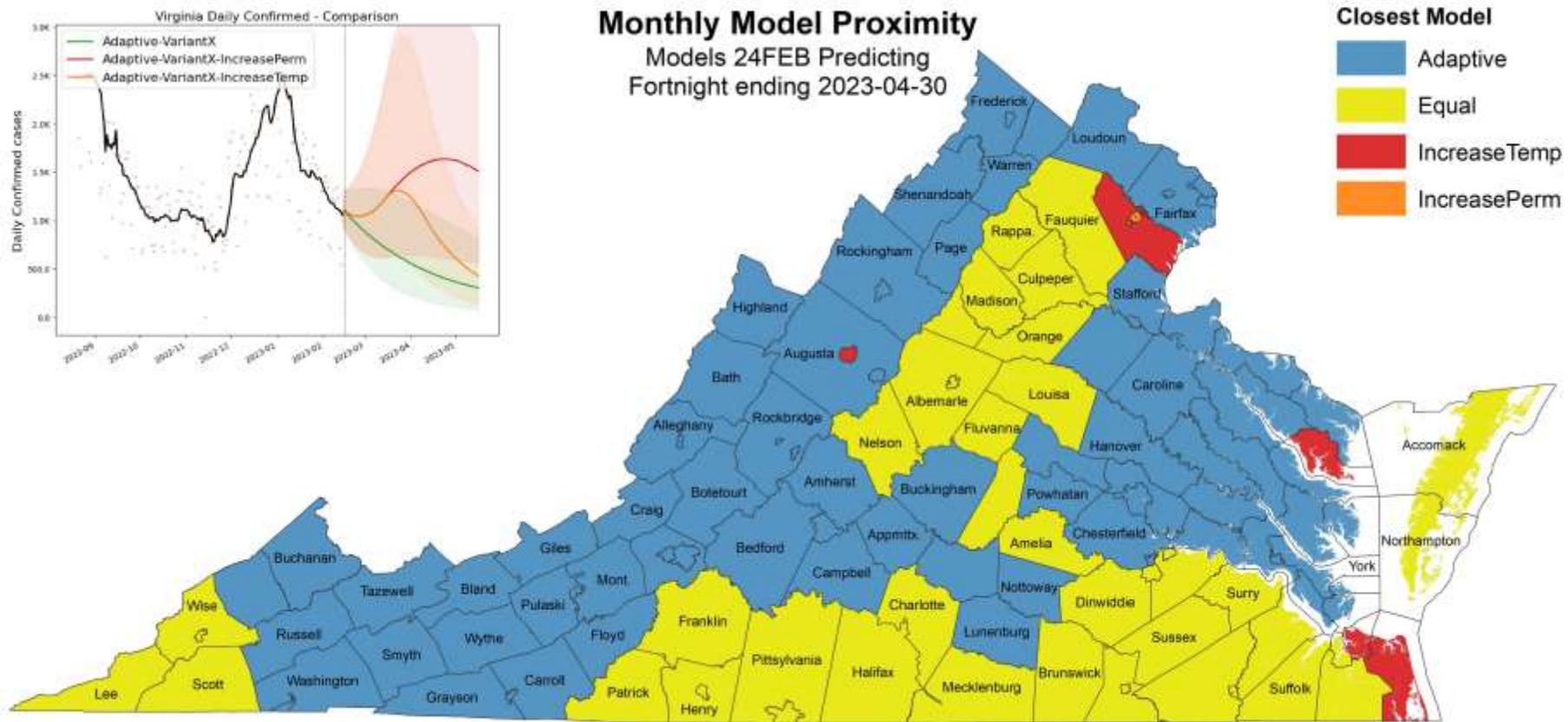


Scenario Trajectory Tracking

Which scenario from two months ago did each county track closest?



Monthly Model Proximity
Models 24FEB Predicting
Fortnight ending 2023-04-30

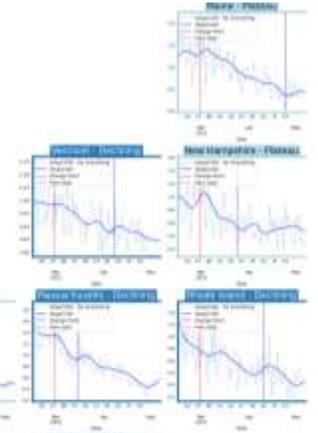
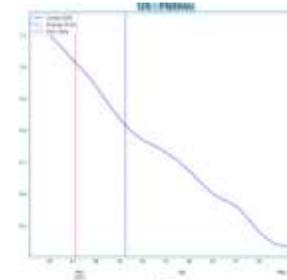
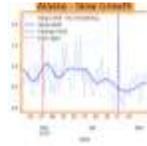


- Fortnightly projections separate the scenarios more clearly and reveal overall patterns.
- Most counties still track the Adaptive (current course) scenario from late February.
- Very similar to last report – only a handful of counties tracked the Inc-Transmission scenarios.

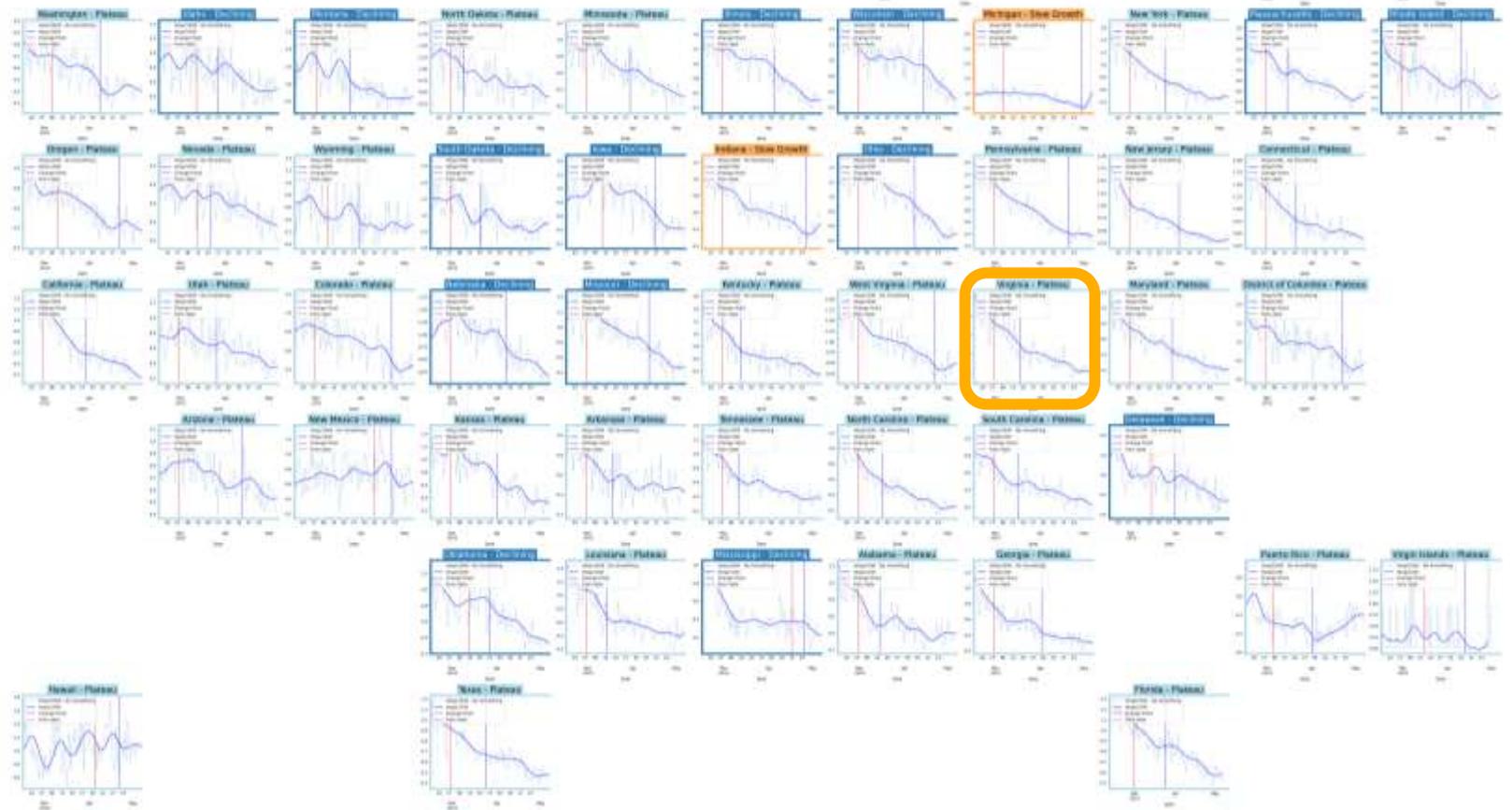
COVID-19 Broader Context



United States Hospitalizations



Status	Number of States	
	Current Week	Last Week
Declining	14	(20)
Plateau	36	(32)
Slow Growth	3	(0)
In Surge	0	(1)

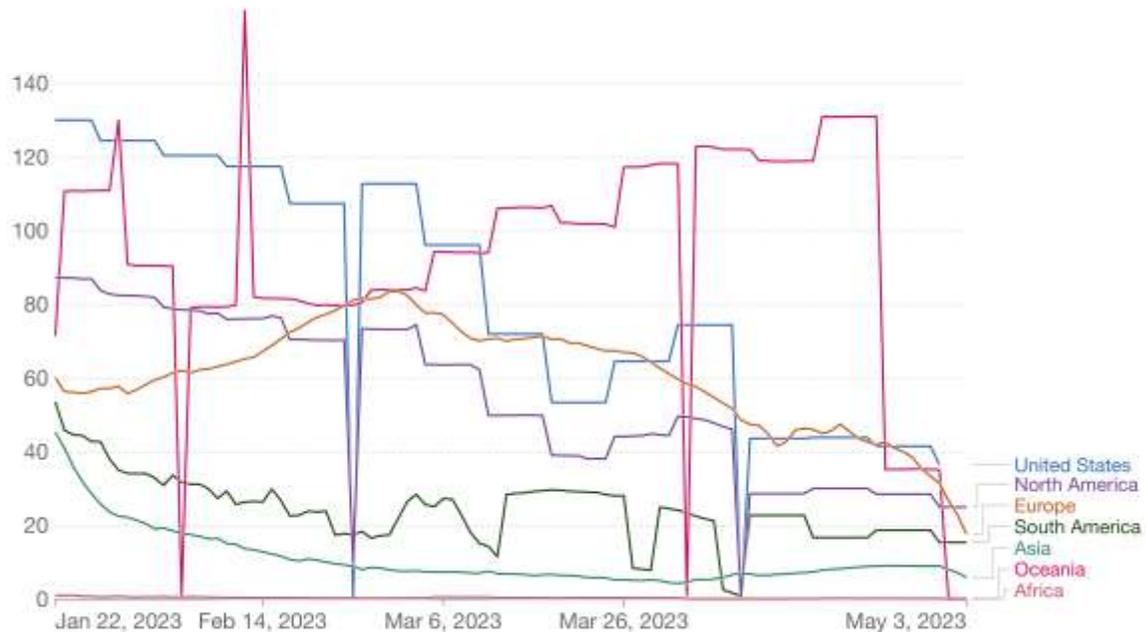


Around the World – Various trajectories

Confirmed cases

Daily new confirmed COVID-19 cases per million people

7-day rolling average. Due to limited testing, the number of confirmed cases is lower than the true number of infections.



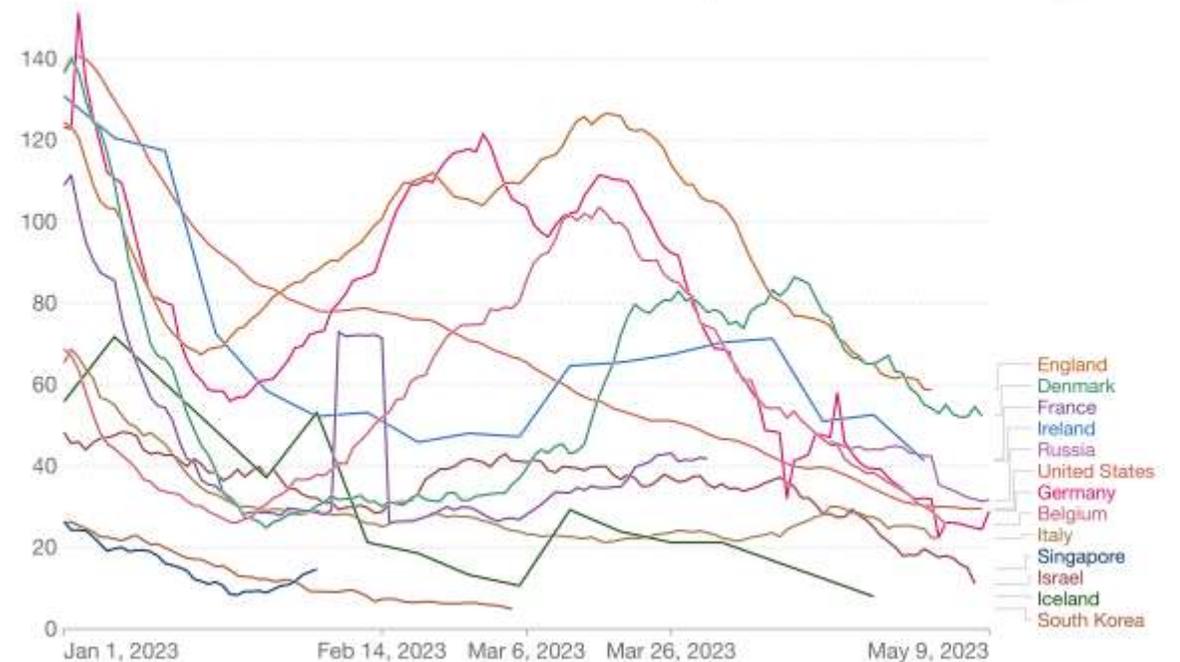
Source: WHO COVID-19 Dashboard

CC BY

Hospitalizations

Weekly new hospital admissions for COVID-19 per million people

Weekly admissions refer to the cumulative number of new admissions over the previous week.



Source: Official data collated by Our World in Data

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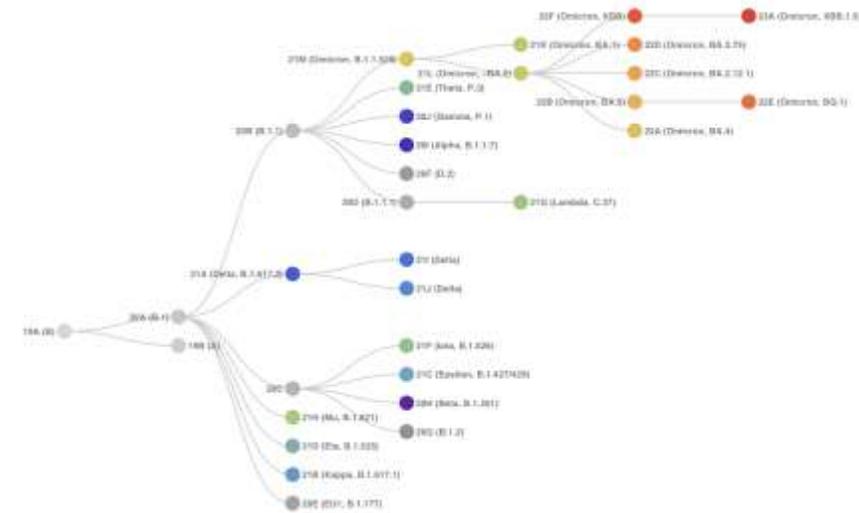
COVID-19 Genomic Update



SARS-CoV2 Variants of Concern

Emerging variants have potential to continue to alter the future trajectories of pandemic and have implications for future control

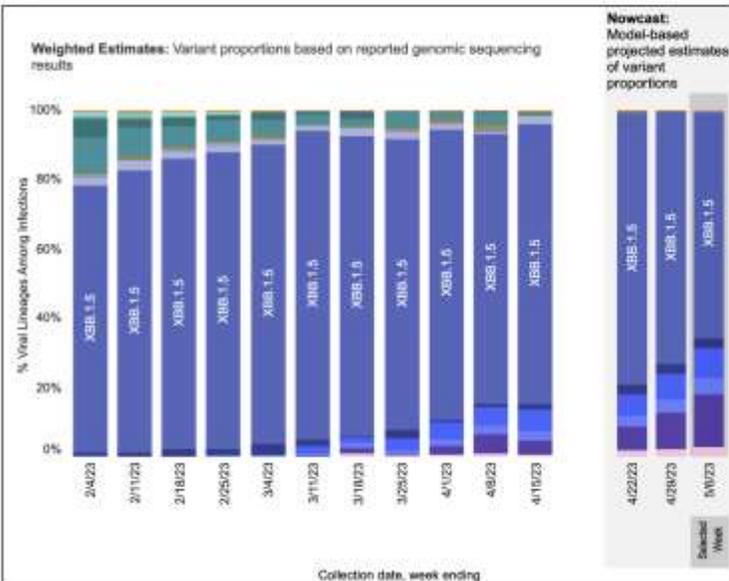
- **Variants have been observed to:** increase transmissibility, increase severity (more hospitalizations and/or deaths), and limit immunity provided by prior infection and vaccinations



Weighted and Nowcast Estimates in HHS Region 3 for Weeks of 1/29/2023 – 5/6/2023

Nowcast Estimates in HHS Region 3 for 4/30/2023 – 5/6/2023

Hover over (or tap in mobile) any lineage of interest to see the amount of uncertainty in that lineage's estimate.



Region 3 - Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia

WHO label	Lineage #	US Class	%Total	95%PI
Omicron	XBB.1.5	VOC	65.4%	58.2-71.9%
	XBB.1.16	VOC	15.3%	9.2-24.1%
	XBB.1.9.1	VOC	8.6%	6.3-11.5%
	XBB.1.9.2	VOC	4.7%	3.0-7.1%
	XBB.1.5.1	VOC	2.9%	2.0-4.1%
	XBB.2.3	VOC	2.8%	1.6-4.6%
	FD.2	VOC	0.1%	0.1-0.2%
	CH.1.1	VOC	0.1%	0.1-0.2%
	BQ.1.1	VOC	0.1%	0.0-0.1%
	BQ.1	VOC	0.0%	0.0-0.0%
	BA.5	VOC	0.0%	0.0-0.0%
	BN.1	VOC	0.0%	0.0-0.0%
	BA.1.1	VOC	0.0%	0.0-0.0%
	BA.2.75	VOC	0.0%	0.0-0.0%
	BA.2	VOC	0.0%	0.0-0.0%
	BA.2.75.2	VOC	0.0%	0.0-0.0%
	BF.7	VOC	0.0%	0.0-0.0%
	BA.5.2.6	VOC	0.0%	0.0-0.0%
	BF.11	VOC	0.0%	0.0-0.0%
	BA.2.12.1	VOC	0.0%	0.0-0.0%
Other	Other*		0.0%	0.0-0.0%

<https://clades.nextstrain.org>

Omicron Updates*

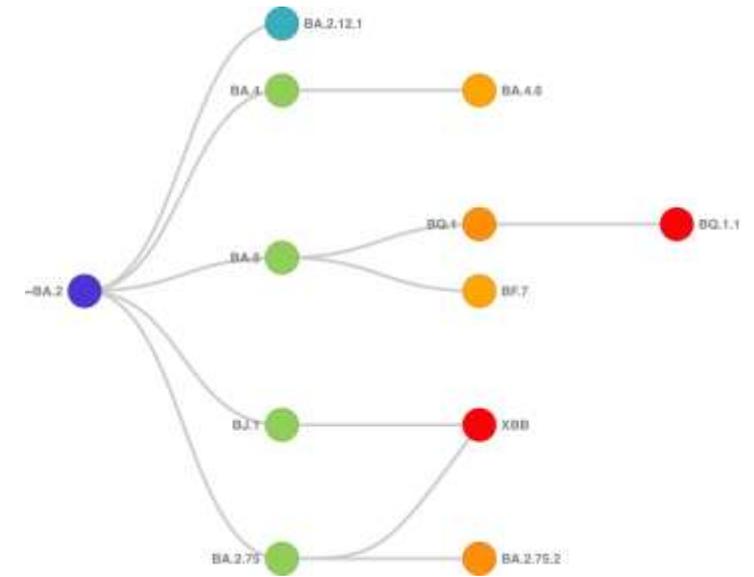
- XBB.1.5 proportions have fallen to 65%
- XBB.1.16.1 continues to grow to 15% from 11% last week
- XBB.1.9.X now at 13% up from 10% last week
- XBB.1.5.1 steady at ~3%
- XBB.2.3 now being tracked is at 2.8%

*percentages are CDC NowCast Estimates

SARS-CoV2 Sequencing

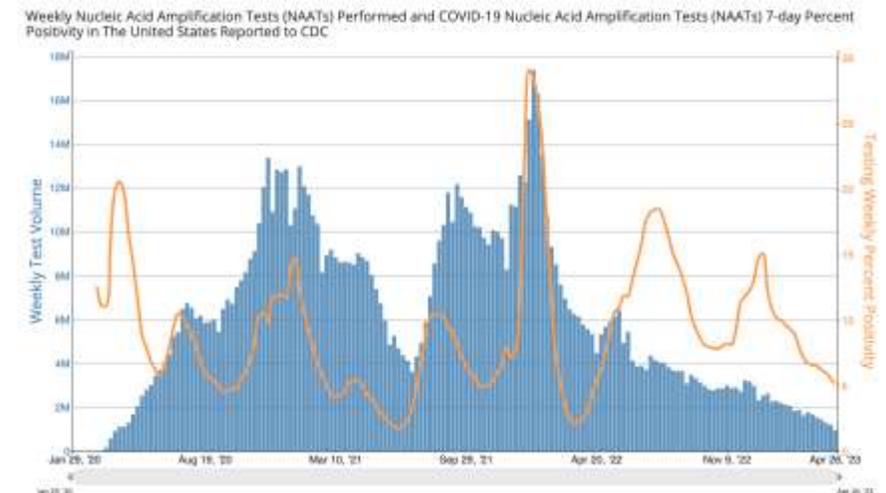
Emerging variants have potential to continue to alter the future trajectories of pandemic and have implications for future control

- Current proportion of cases being sequenced is on a downward trend nationally.
- Leveraging additional resources such as wastewater sequencing and adopting into existing infrastructure will be an important supplement

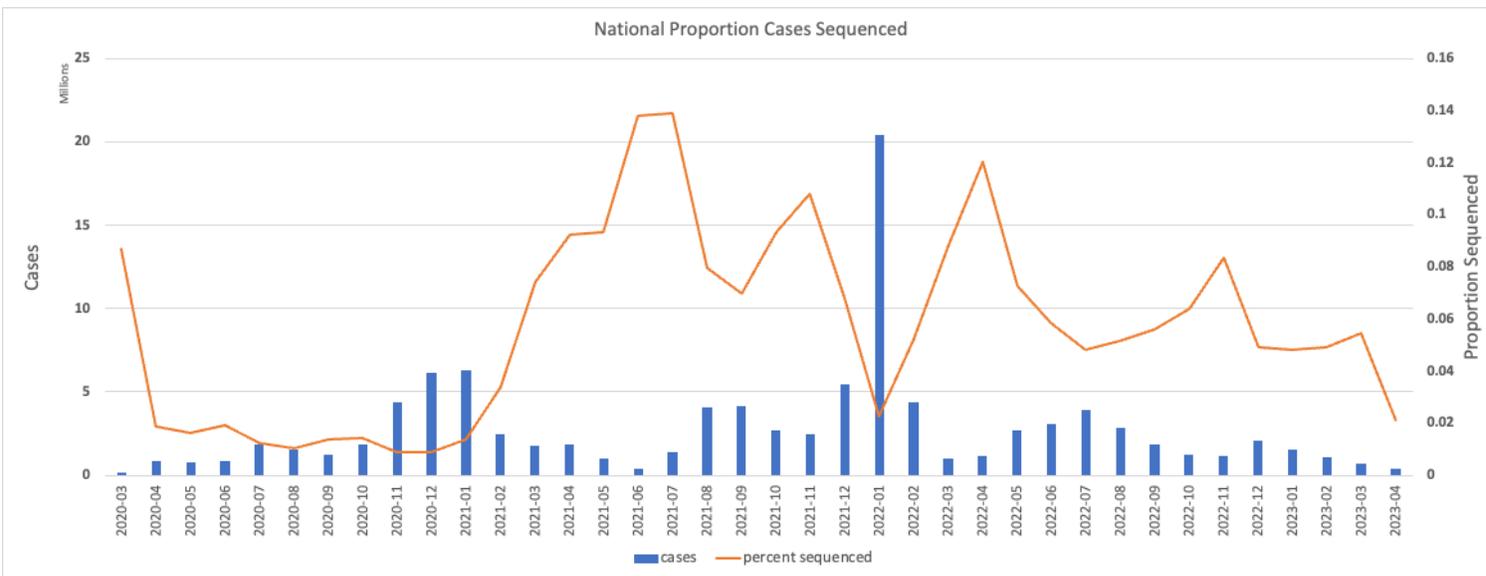


<https://clades.nextstrain.org>

United States



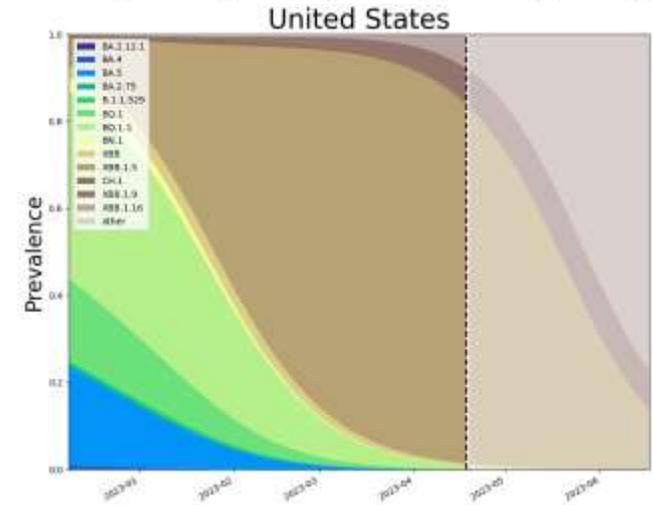
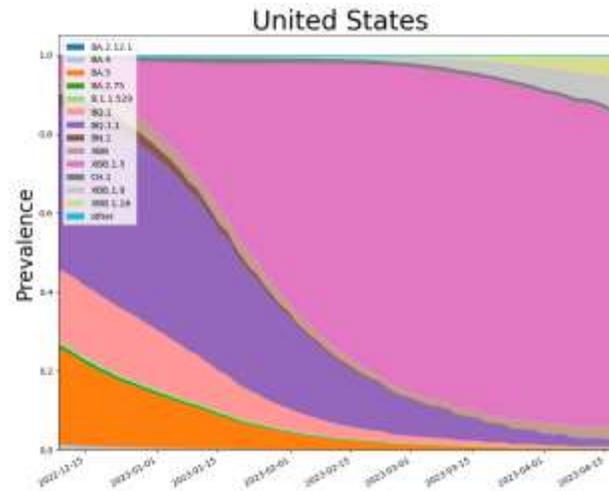
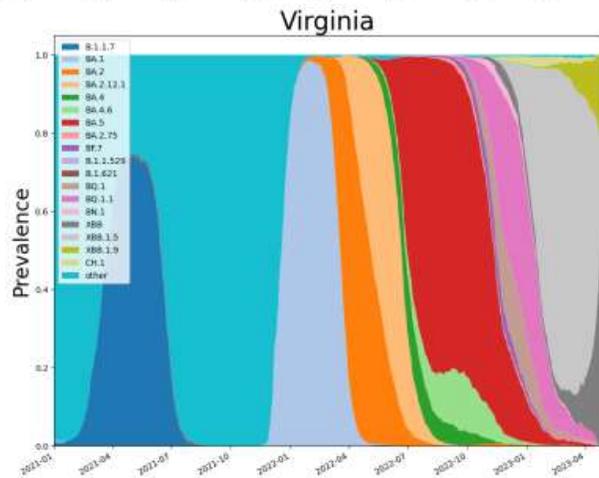
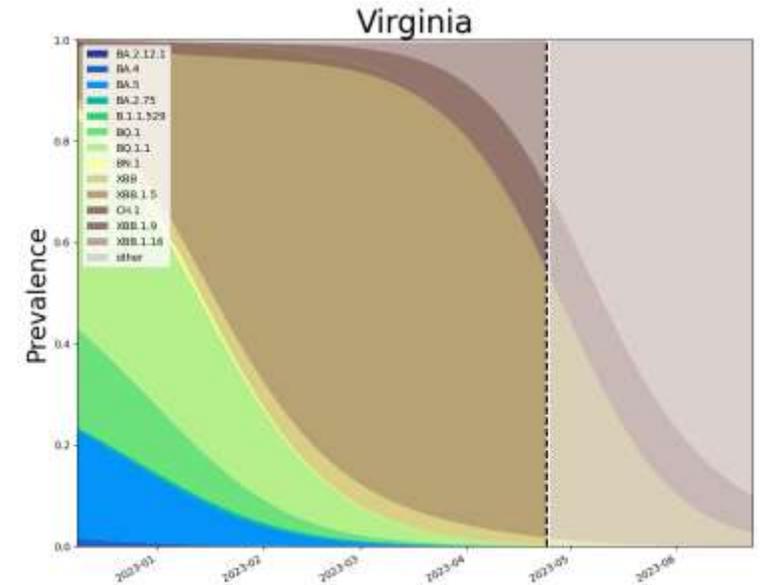
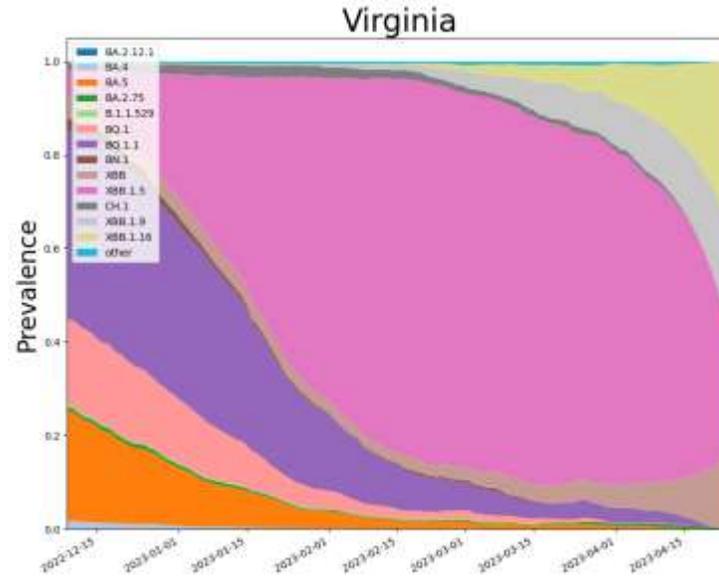
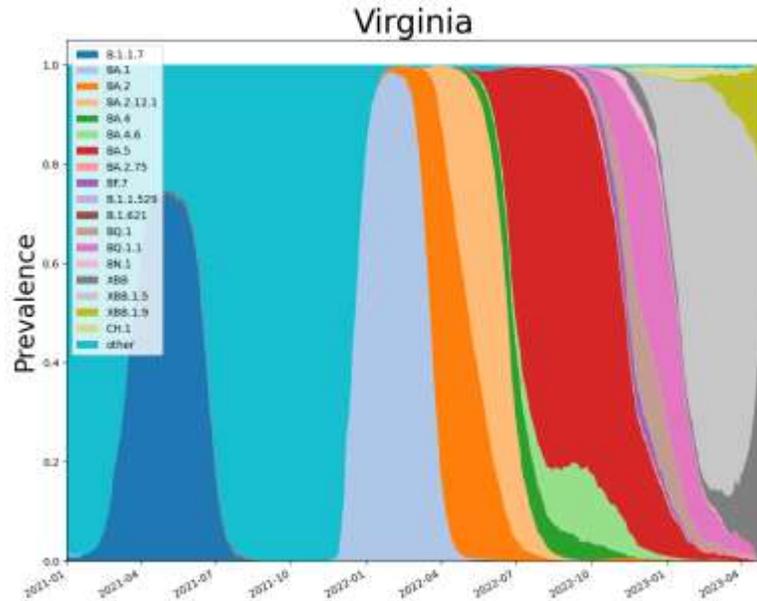
https://covid.cdc.gov/covid-data-tracker/#trends_7daytestresultsreported_7daytestingpositive_00



SARS-CoV2 Omicron Sub-Variants

As detected in whole genomes in public repositories

VoC Polynomial Fit Projections



Note:
Everything
from dotted
line forward is
a projection.

11-May-23

SARS-CoV2 Omicron Sub-Variants

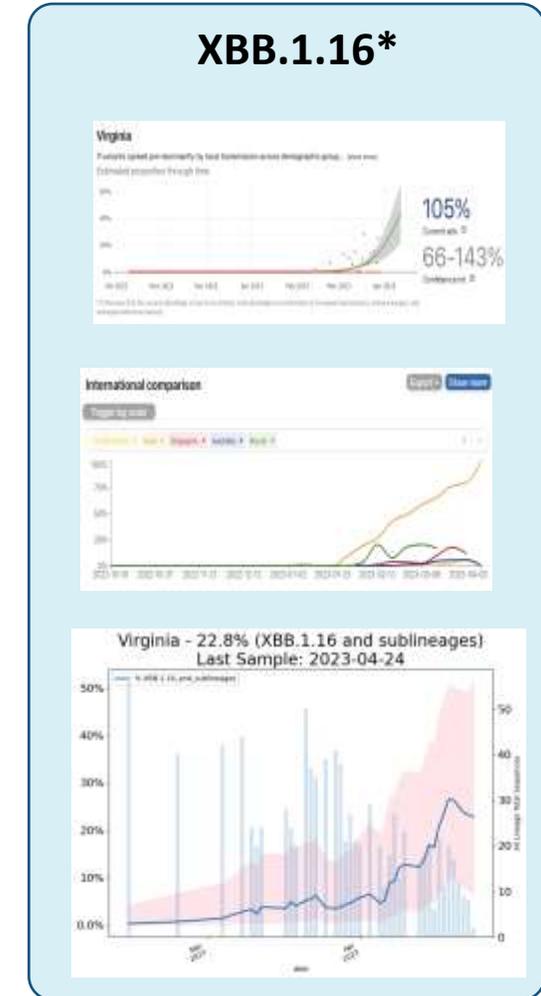
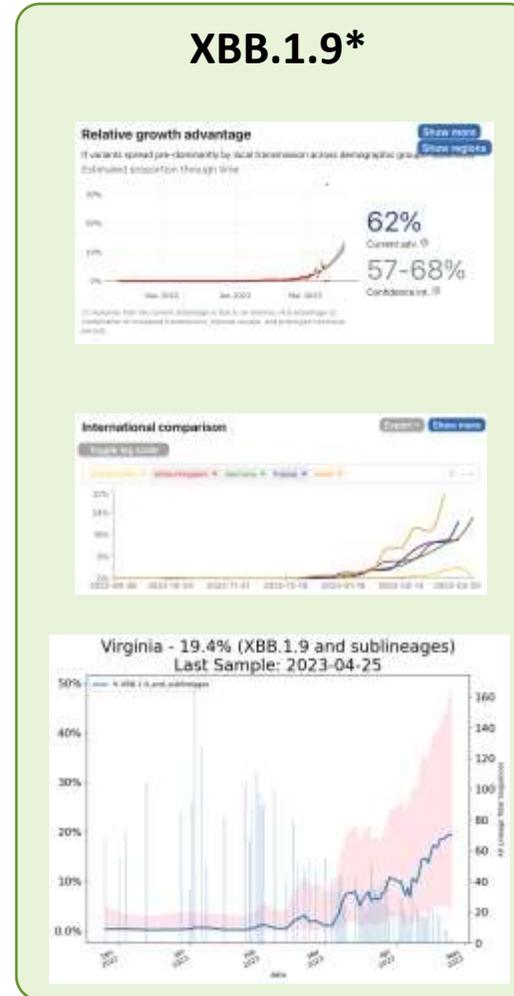
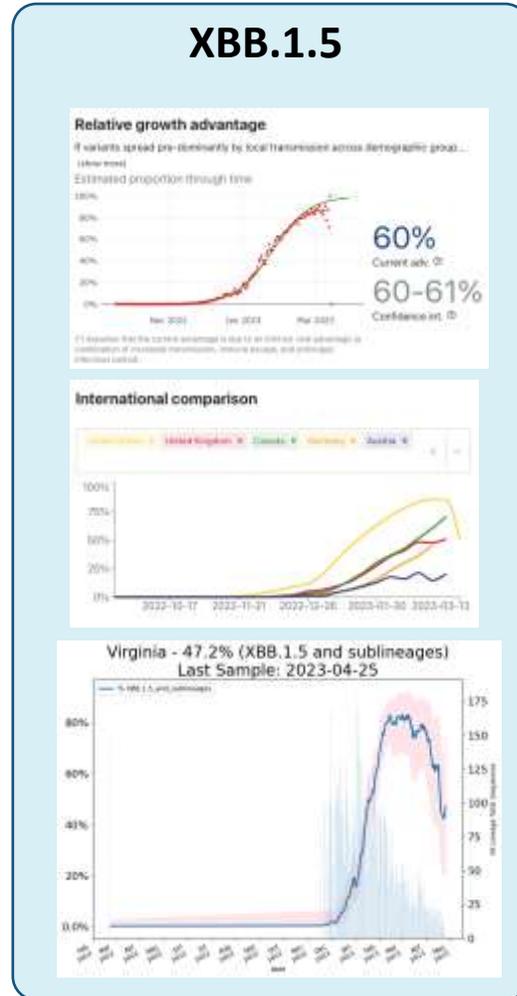
COV-spectrum

“Editor’s choice”
Variants to watch



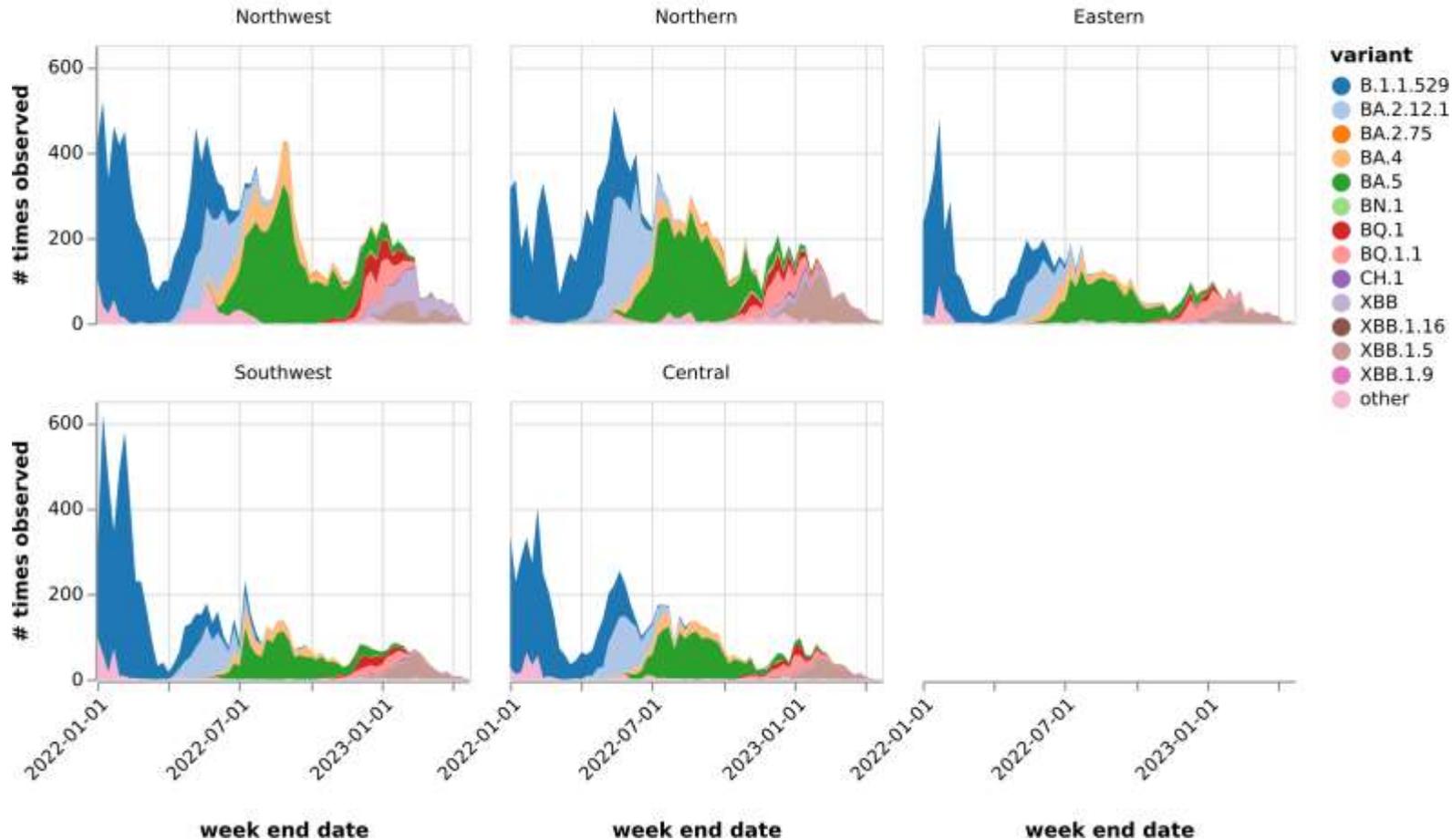
COVSPECTRUM

Enabled by data from GISAID



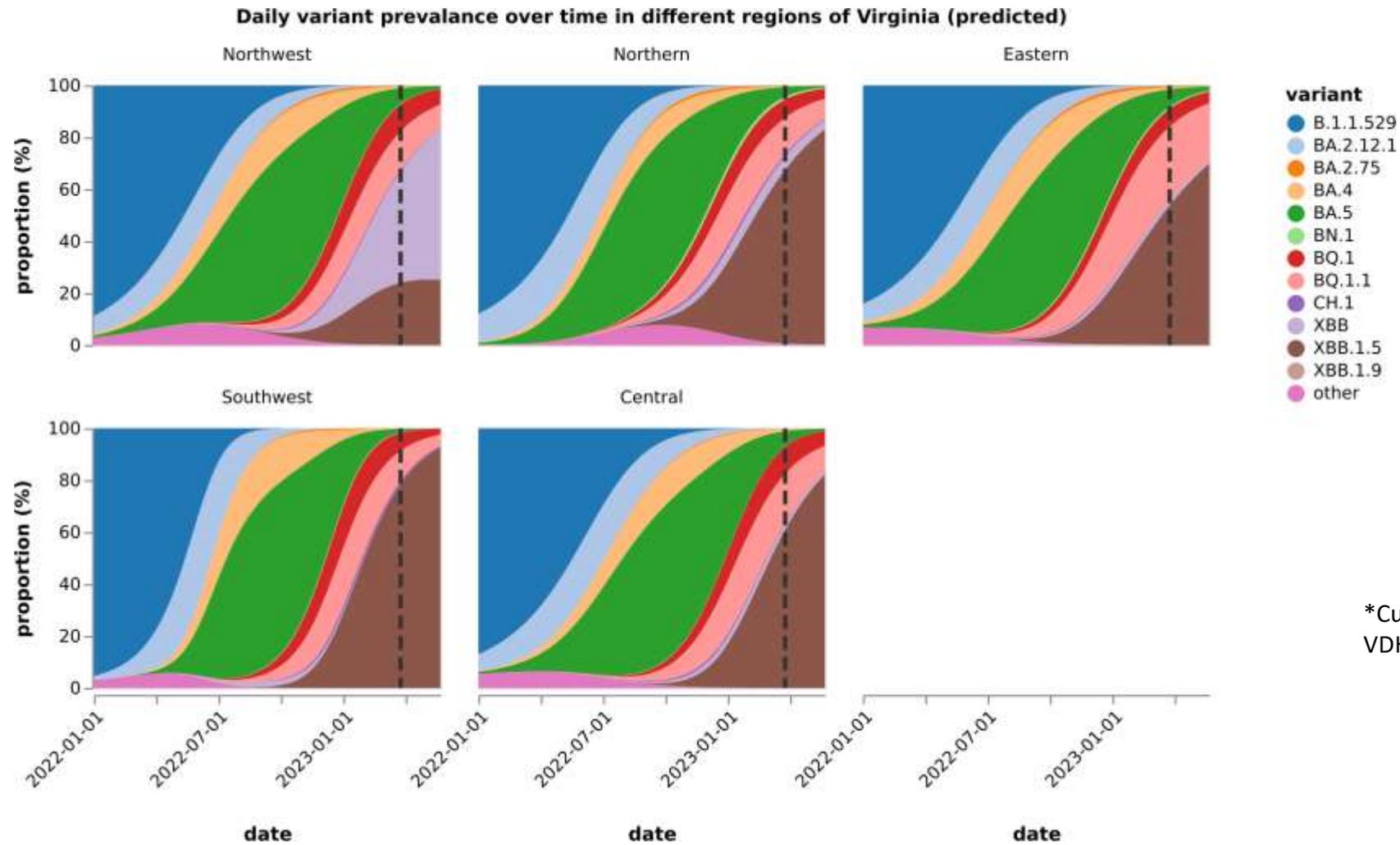
SARS-CoV2 Omicron Sub-Variants

Weekly variant count observations over time in different regions of Virginia



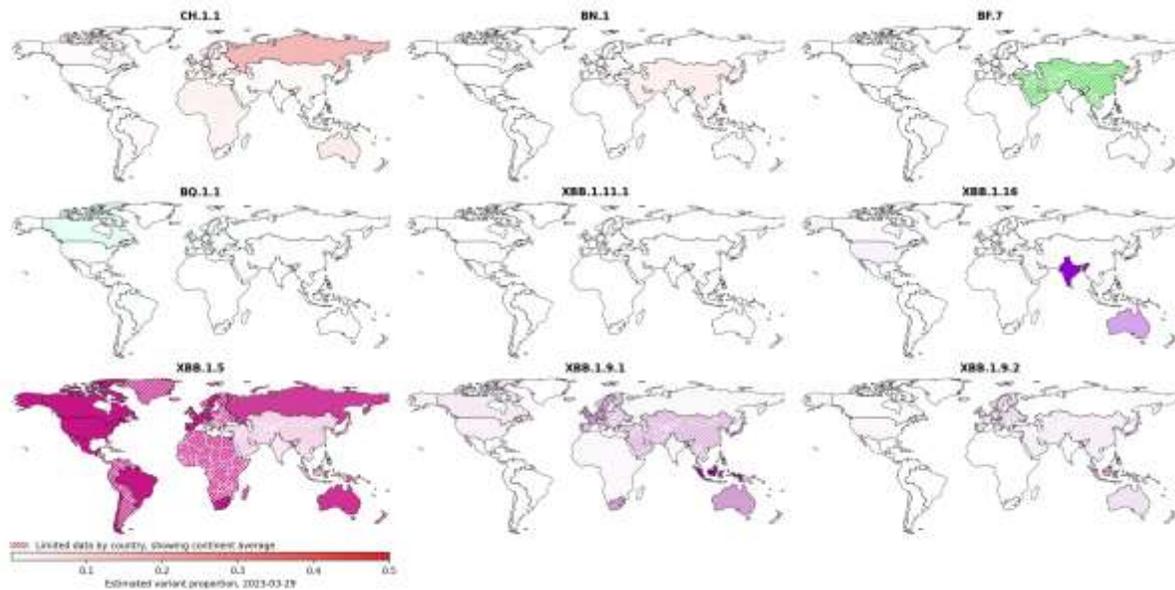
*Currently Impacted by VDH pangolin calls

SARS-CoV2 Omicron Sub-Variants

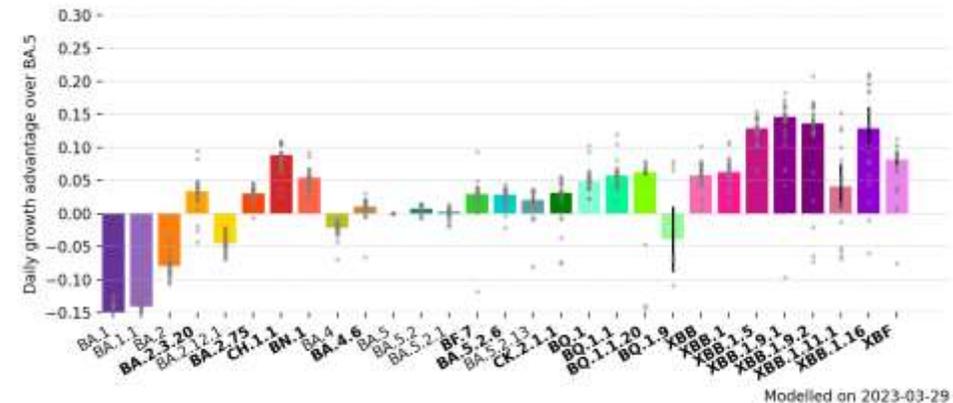
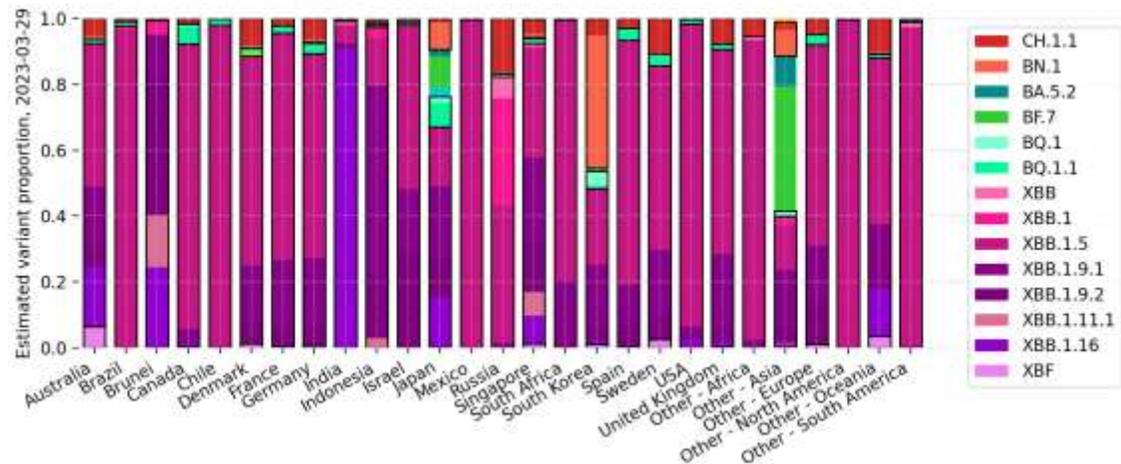
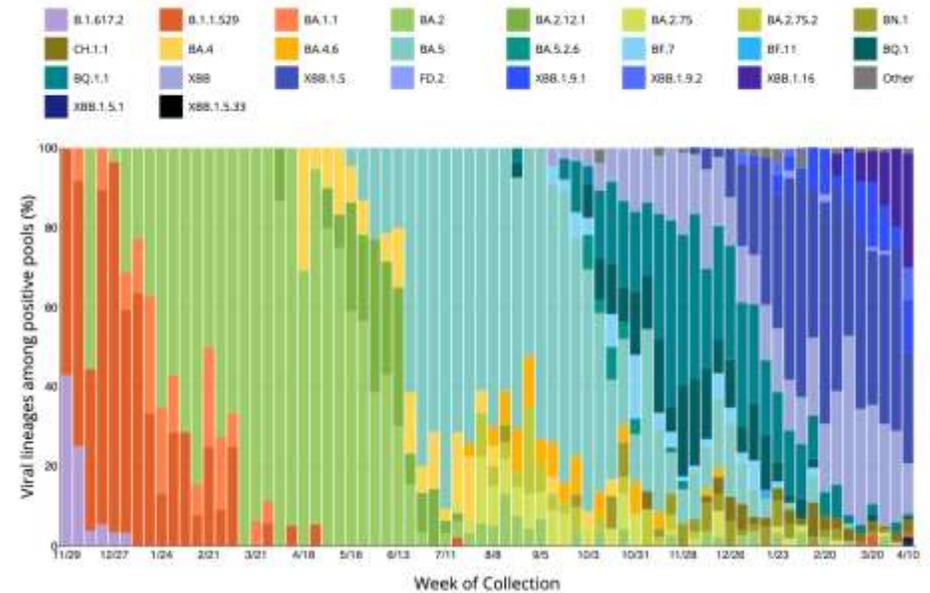


*Currently Impacted by VDH pangolin calls

Global SARS-CoV-2 Variant Status



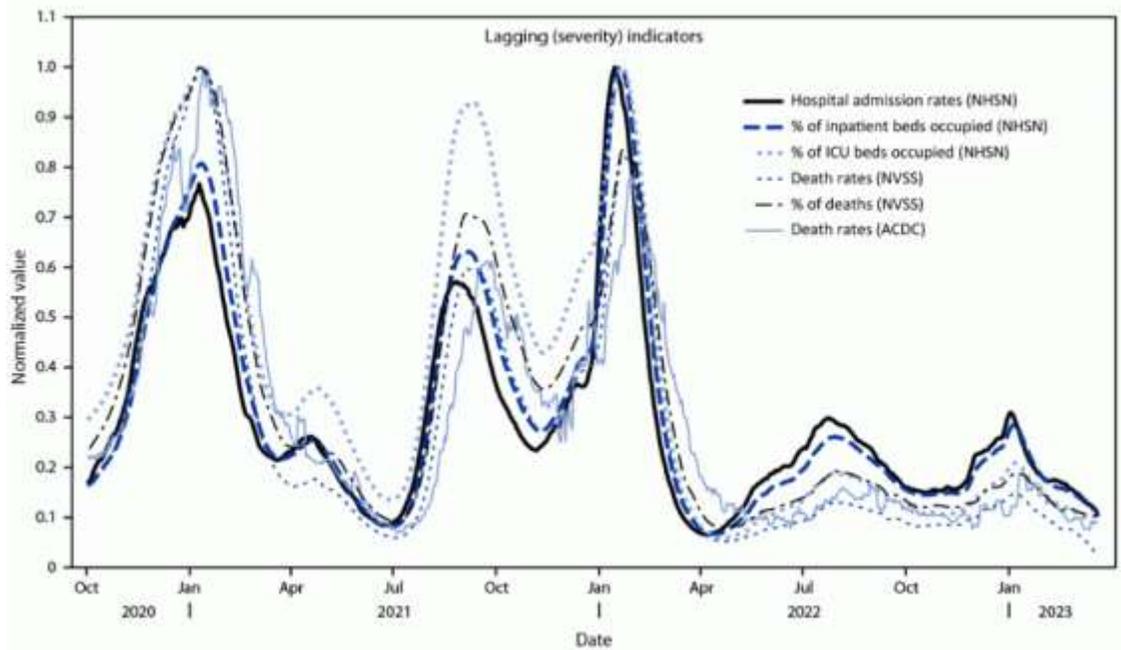
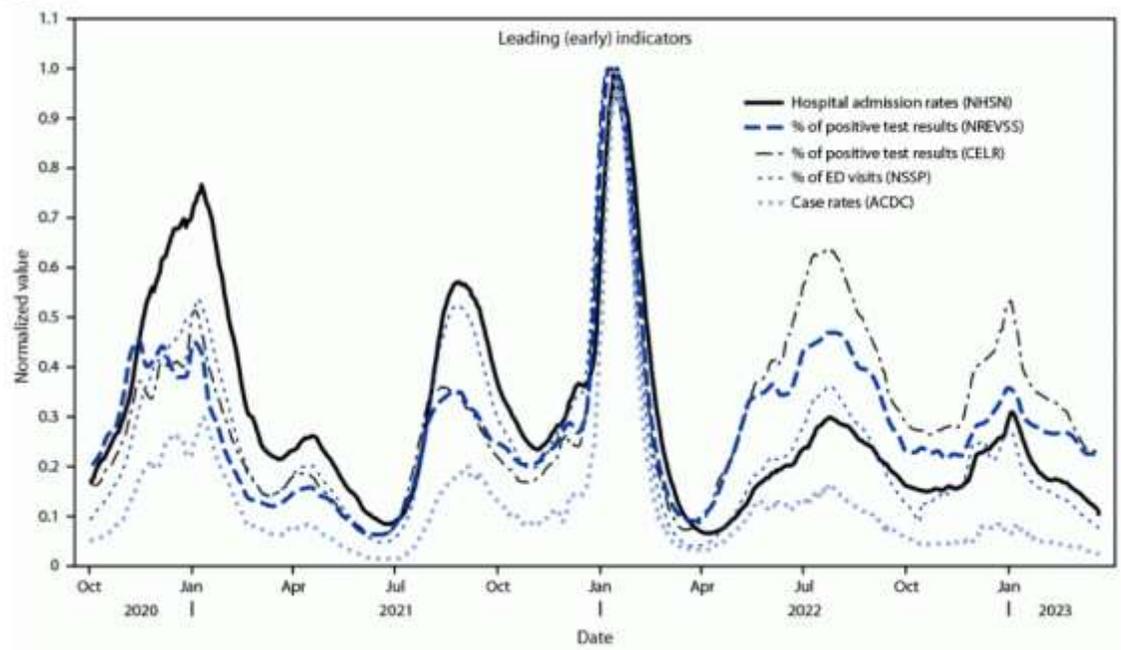
Variants Detected, by Collection Week



Pandemic Pubs (May 11th, 2023)

Positive test results, emergency department visits, and COVID-19 deaths are suitable and timely indicators of trends in COVID-19 activity and severity.

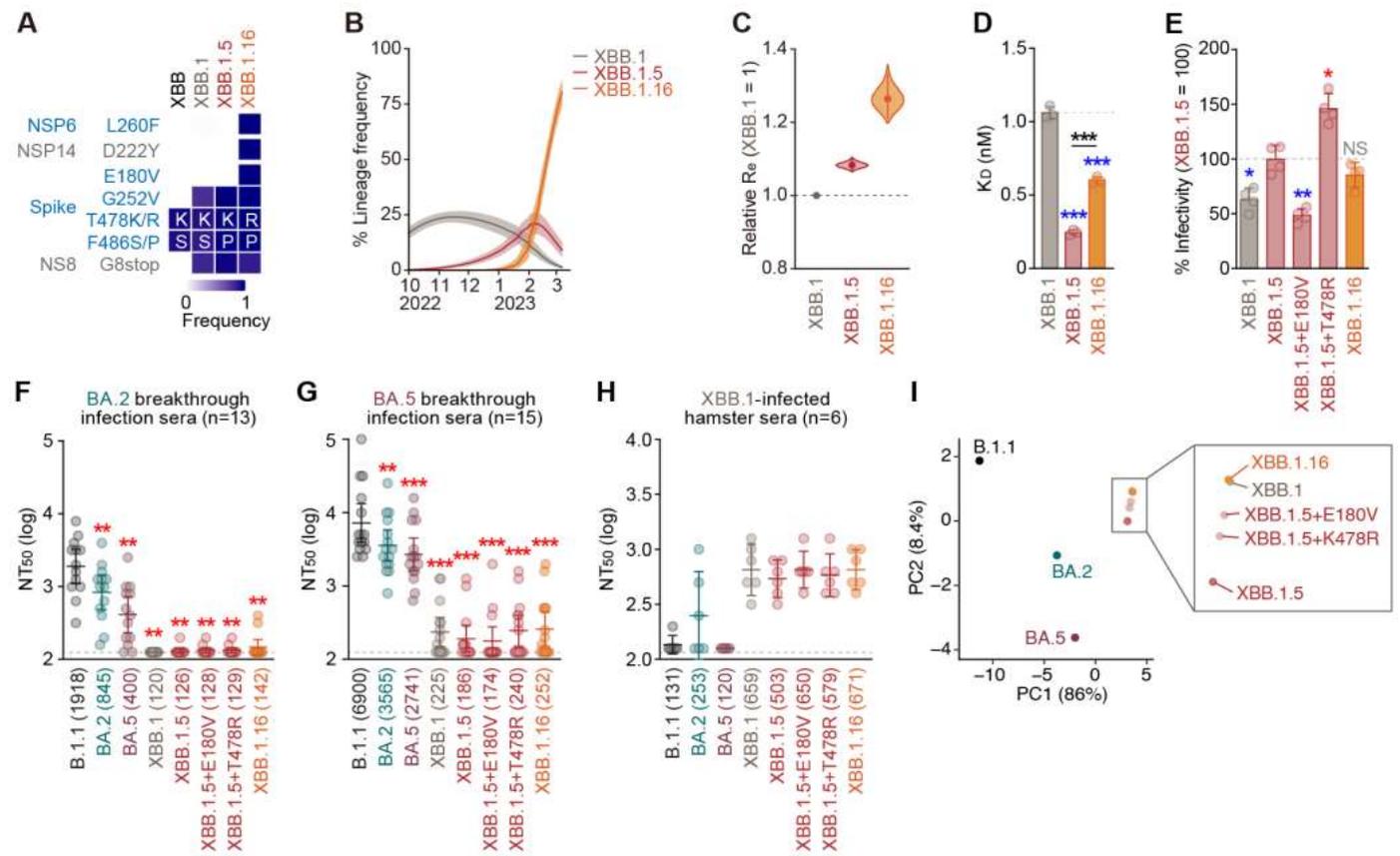
FIGURE. Trends in normalized values* of leading (A) and lagging (B)† COVID-19 surveillance indicators — United States, October 1, 2020–March 22, 2023



Weekly COVID-19 Community Levels (CCLs) will be replaced with levels of COVID-19 hospital admission rates (low, medium, or high) which demonstrated >99% concordance by county during February 2022–March 2023. Authors suggest COVID-19–associated hospital admission levels are a suitable primary metric for monitoring COVID-19 trends

Pandemic Pubs (April 19th, 2023)

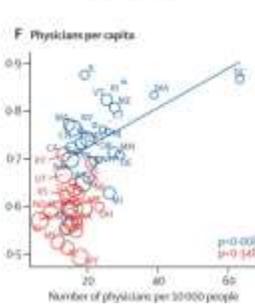
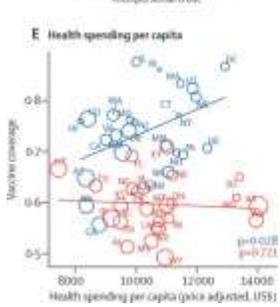
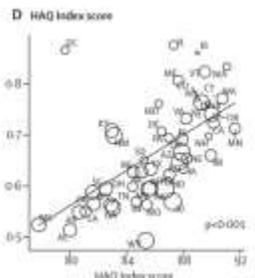
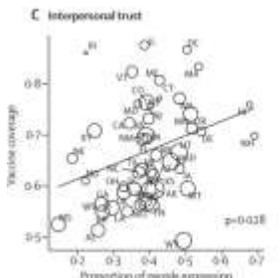
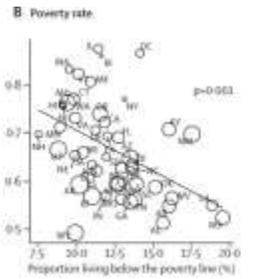
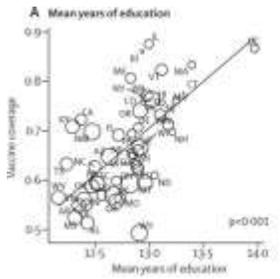
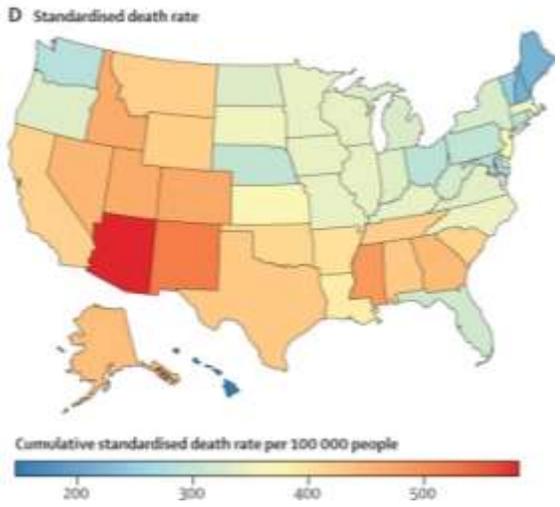
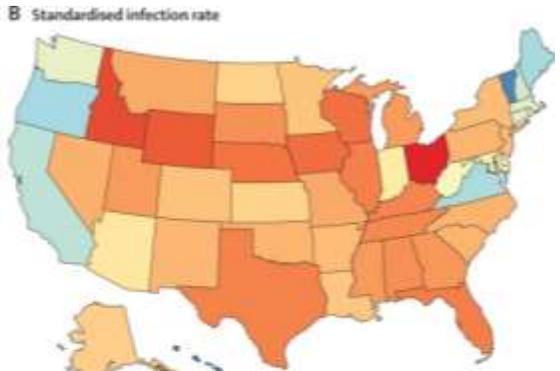
1. XBB.1.16 shows a similar resistance profile to XBB.1 and XBB.1, in that it is resistant to a variety of anti-SARS-CoV-2 antibodies from breakthrough infections. Scientists suggest this parity indicates it's growth advantage may come from some other transmission property such as a change in antigenicity or in viral growth efficiency.



Scientists in Japan characterized the antibody neutralization of XBB.1.16. Panels F, G, H indicate as similar neutralization profile to other XBB variants relative to breakthrough infections. Panels D and E show the ACE2 binding affinity and infectivity respectively. A change in antigenicity relative to XBB 1.5 is inferred from a PCA of neutralization assays F and G (neutralization cartography).

Pandemic Pubs (March 30, 2023)

1. A comprehensive assessment of factors associated with standardized infection, hospitalization, and death rates were performed, including healthcare, social, and political factors that vary by state. Virginia's standardized death rate was lower than the national average. Many other outcomes and factors were assessed. [Lancet](#)



Standardised cumulative COVID-19 death rates for the period from Jan 1, 2020, to July 31, 2022 varied across the USA (national rate 372 deaths per 100 000 population [95% uncertainty interval [UI] 364–379]),

A lower poverty rate, higher mean number of years of education, and a greater proportion of people expressing interpersonal trust were statistically associated with lower infection and death rates, and states where larger percentages of the population identify as Black (non-Hispanic) or Hispanic were associated with higher cumulative death rates.

Access to quality health care (measured by the IHME's Healthcare Access and Quality Index) was associated with fewer total COVID-19 deaths and SARS-CoV-2 infections, but higher public health spending and more public health personnel per capita were not, at the state level. The political affiliation of the state governor was not associated with lower SARS-CoV-2 infection or COVID-19 death rates, but worse COVID-19 outcomes were associated with the proportion of a state's voters who voted for the 2020 Republican presidential candidate. State governments' uses of protective mandates were associated with lower infection rates, as were mask use, lower mobility, and higher vaccination rate, while **vaccination rates were associated with lower death rates**. State GDP and student reading test scores were not associated with state COVID-19 policy responses, infection rates, or death rates.

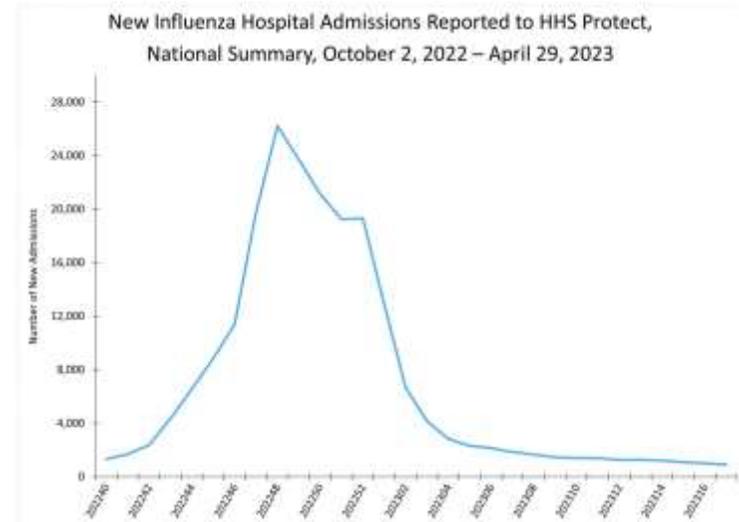
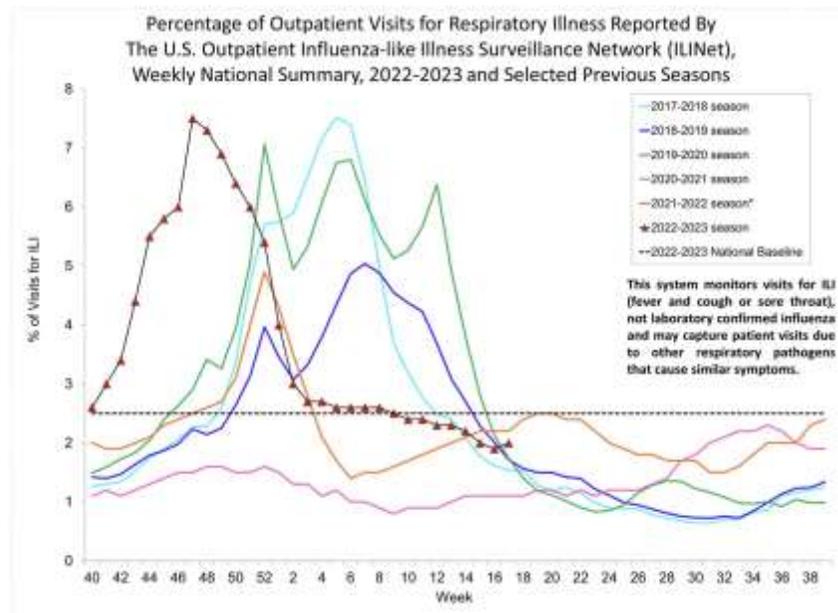
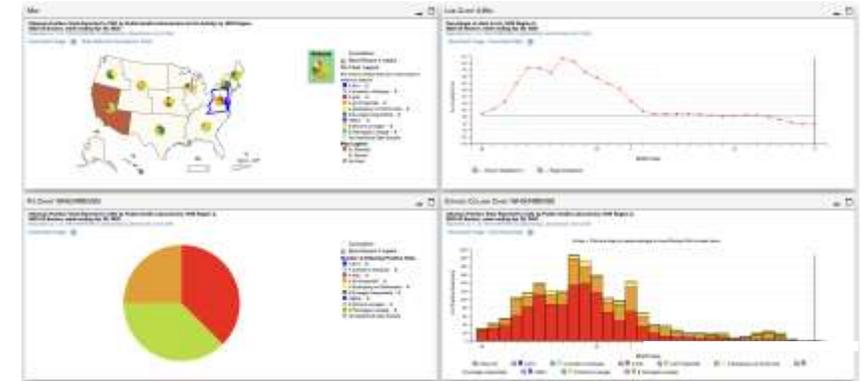
Influenza Update

Current Influenza Situation – ILI Activity

Region 3

Influenza Activity remains below threshold

- Virginia remains at a "Low" level as is most of the nation
- National ILI activity has also consistently declined since a peak in late November, and remains below threshold
- Most regions and the nation are now below the seasonal threshold for ILI activity, though a region has ticked above threshold in recent weeks

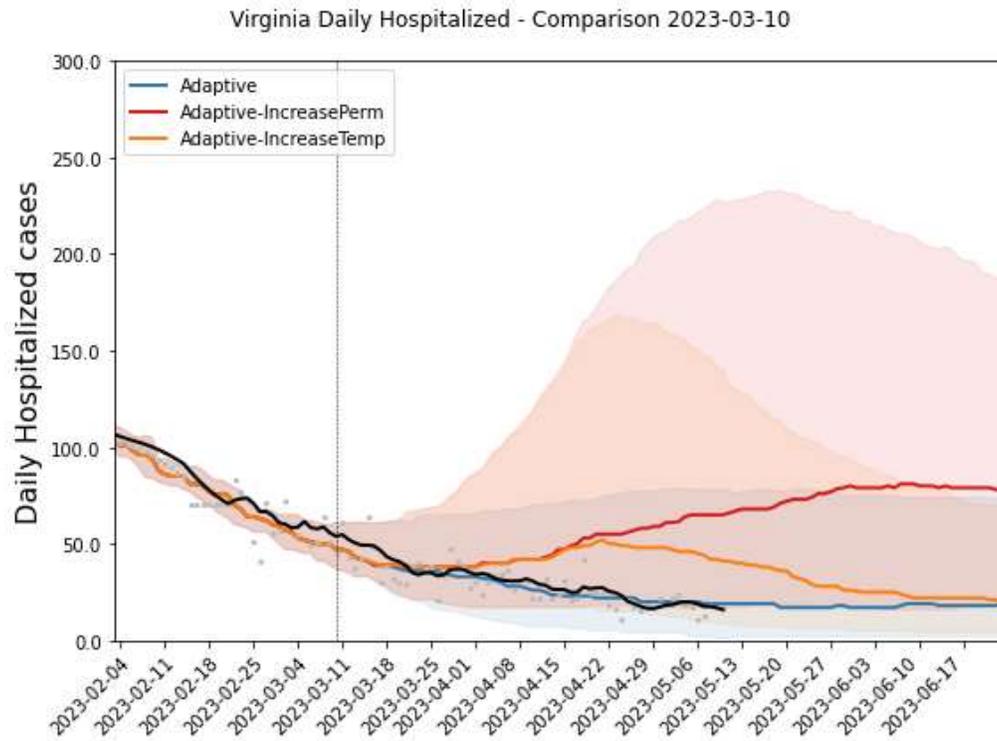


Model Results

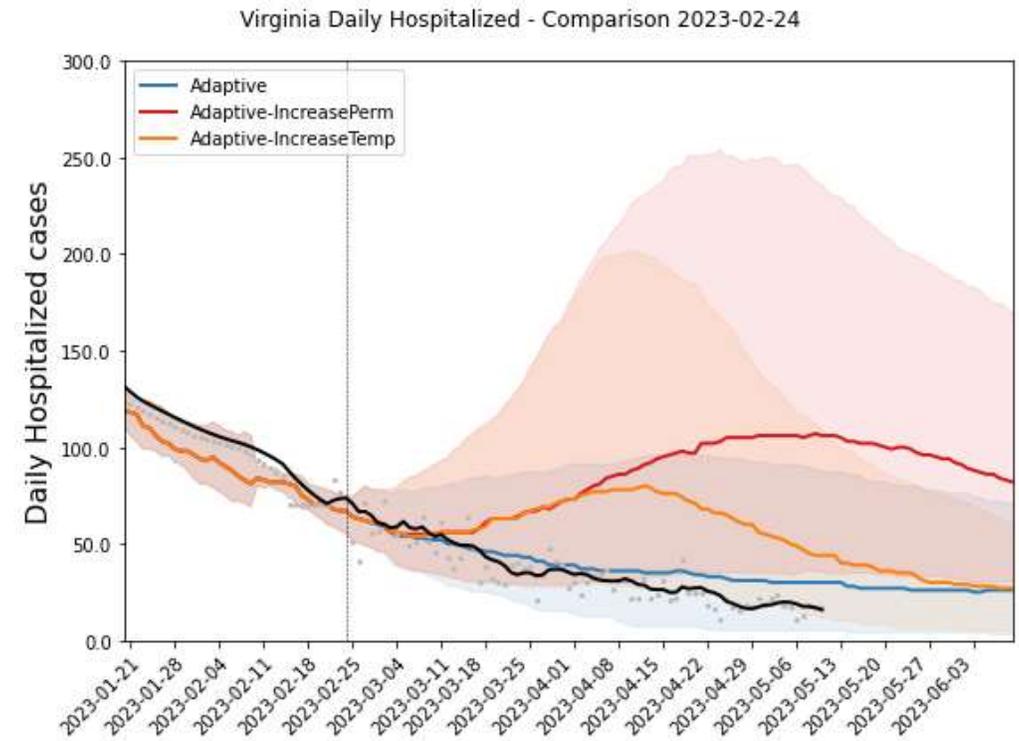
Past projections – Hospitalizations

- Previous projections remain on target with recent observations
- Past 10 weeks have stayed steady and indicate no increases in transmissions

Previous round – 8 weeks ago



Previous round – 10 weeks ago



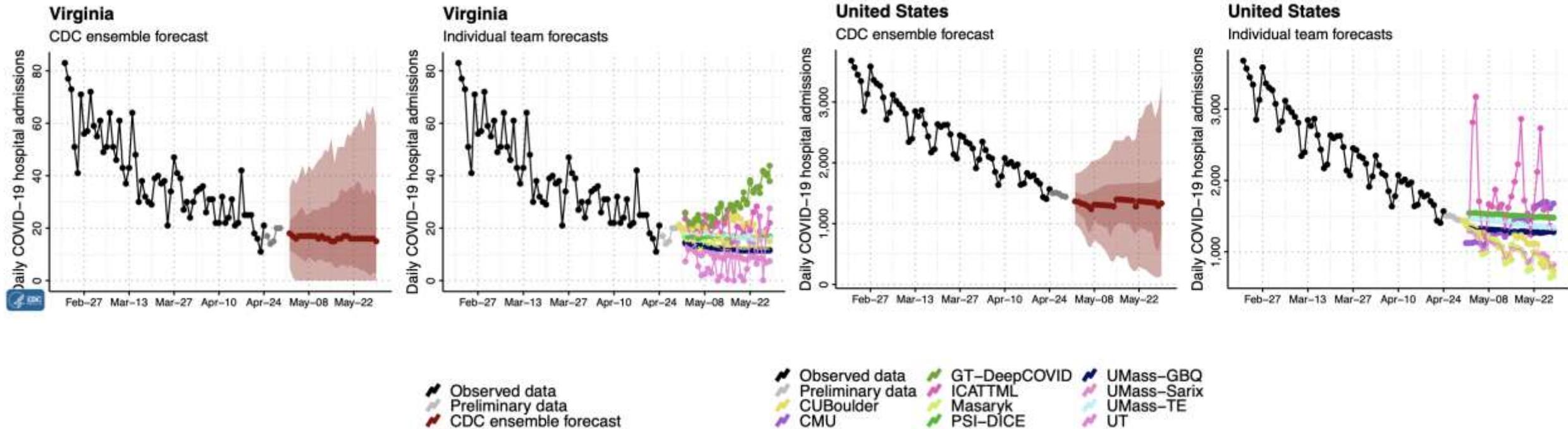
National Modeling Hub Updates

Current COVID-19 Hospitalization Forecast

Statistical models for submitting to CDC COVID Forecasting Hub

- Uses a variety of statistical and ML approaches to forecast weekly hospital admissions for the next 4 weeks for all states in the US

Hospital Admissions for COVID-19 and Forecast for next 4 weeks (CDC COVID Ensemble)



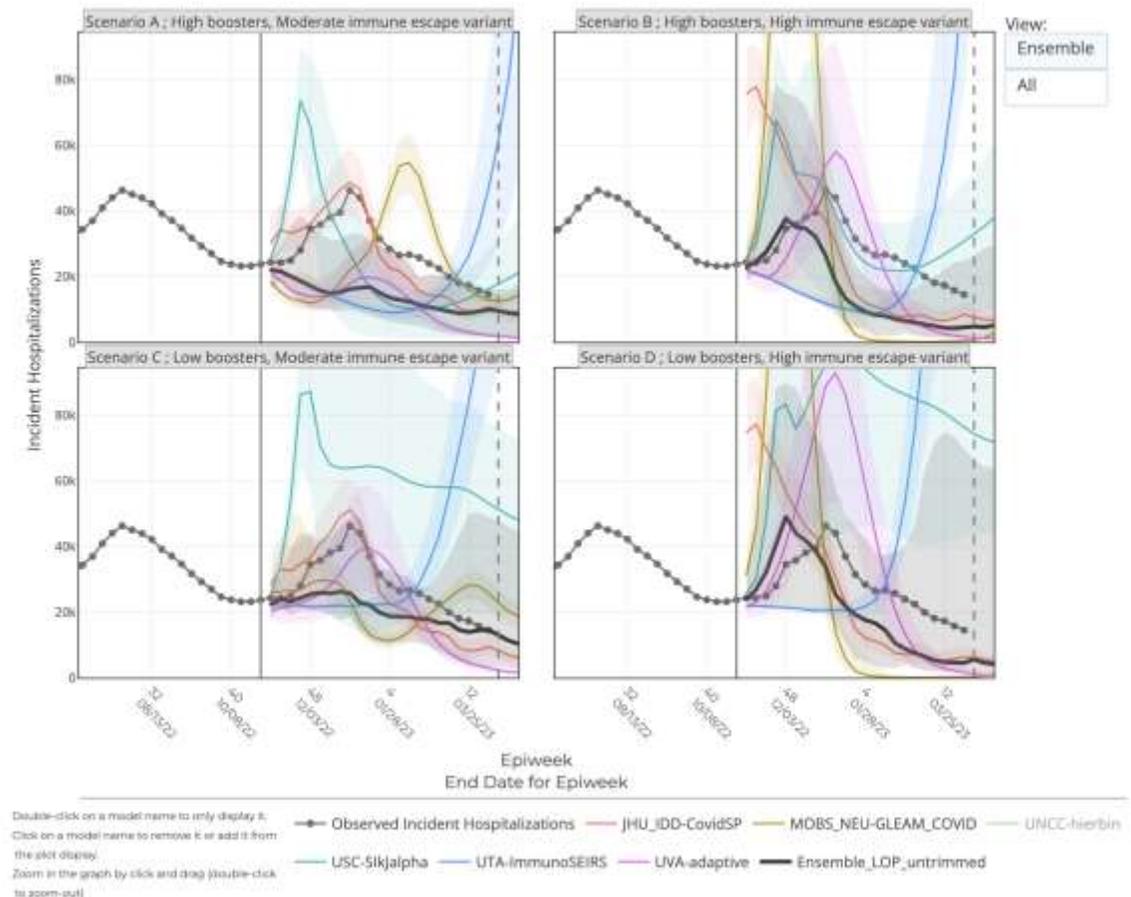
Scenario Modeling Hub – COVID-19 (Round 16)

Collaboration of multiple academic teams to provide national and state-by-state level projections for 4 aligned scenarios

- Round 16 results published
- Moderate escape scenarios tracking best
- Round 17 is underway, prelim results in coming weeks

<https://covid19scenariomodelinghub.org/viz.html>

Projected Incident Hospitalizations by Epidemiological Week and by Scenario for Round 16 - US
[- Projection Epiweek - Current Week]



	Level 5 Variants	*Level 6/7* Variants
Accelerating uptake levels of reformulated boosters	<p>Scenario A</p> <p>*Level 5* Variants</p> <ul style="list-style-type: none"> - Variants have a 20% immune escape from BA.5.2 - Seeding based on combined observed prevalence of Level 5 variants at the start of the projection period - No change in severity given symptomatic infection <p>Accelerating uptake levels of reformulated boosters, with coverage plateauing at 90% of flu vaccination levels by February 1st, 2023</p> <ul style="list-style-type: none"> - Teams are free to use available data and information from current and previous releases as they see fit to define rates - Teams should assume increasing uptake through October and November as necessary to reach the projected February 1st, 2023 plateau 	<p>Scenario B</p> <p>*Level 6/7* Variants</p> <ul style="list-style-type: none"> - Variants have a 50% immune escape from BA.5.2 - Seeding based on combined observed prevalence of Level 6 and 7 variants at the start of the projection period - No change in severity given symptomatic infection <p>Accelerating uptake levels of reformulated boosters, with coverage plateauing at 90% of flu vaccination levels by February 1st, 2023</p> <ul style="list-style-type: none"> - Teams are free to use available data and information from current and previous releases as they see fit to define rates - Teams should assume increasing uptake through October and November as necessary to reach the projected February 1st, 2023 plateau
Current uptake levels of reformulated boosters	<p>Scenario C</p> <p>*Level 5* Variants</p> <ul style="list-style-type: none"> - Variants have a 20% immune escape from BA.5.2 - Seeding based on combined observed prevalence of Level 5 variants at the start of the projection period - No change in severity given symptomatic infection <p>Current uptake levels of reformulated boosters, with coverage plateauing at booster 1 levels by the end of the simulation</p> <ul style="list-style-type: none"> - Teams are free to use available data and information from current and previous releases as they see fit to define rates - Based on current rates, plateau date is flexible as long as it occurs before the end of the simulation (Teams can adjust rates up if needed to achieve absolute coverage by target date) 	<p>Scenario D</p> <p>*Level 6/7* Variants</p> <ul style="list-style-type: none"> - Variants have a 50% immune escape from BA.5.2 - Seeding based on combined observed prevalence of Level 6 and 7 variants at the start of the projection period - No change in severity given symptomatic infection <p>Current uptake levels of reformulated boosters, with coverage plateauing at booster 1 levels by the end of the simulation</p> <ul style="list-style-type: none"> - Teams are free to use available data and information from current and previous releases as they see fit to define rates - Based on current rates, plateau date is flexible as long as it occurs before the end of the simulation (Teams can adjust rates up if needed to achieve absolute coverage by target date)

Key Takeaways

Projecting future cases precisely is impossible and unnecessary.

Even without perfect projections, we can confidently draw conclusions:

- Case rates and hospitalizations from COVID-19 continue declines but rate has slowed and has seemingly entered a plateau
 - Hospital occupancy down to levels last seen in early May of 2022
- Nearly all indicators point to this trend continuing in near term
- Influenza hospitalizations remain very low and ILI activity remains below seasonal threshold

Model Updates

- Projected Trajectories from previous rounds remain on target, no new projections made this round

Questions?

Biocomplexity COVID-19 Response Team

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